

TYPE-IN PROGS FOR CBM 64, SPECTRUM, VIC!



No.5

Aug
1984

CHANGING OUR IMAGE...



Europe
\$1.70
New Zealand
\$2.10
Australia
\$1.25



HOW
WAS IT
DONE?

We Tell You How p.72

85p

10 PAGES OF
GAMES
REVIEWS

BOOSTING
YOUR BEB'S
BRAINPOWER

SPECIAL REPORT U.S.A.
The Newest, The Latest!
Letterbase/Arco Alley
68000 Assembler/Books
Darksleyer and
Much, much More!

WIN A WEEK IN FLORIDA
plus \$500 SPENDING MONEY!
plus A TRIP TO N.A.S.A.!

In our unique and N-TET COMPETITION

inside p.58

gamesmanship

00000000

A game of strategy. Choose your
action: choose your value. Moves
are winning. Awarded every . . .
There is a twist to it. Can you
and your partner win?

Abstract



Abstract

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

Link [on Planet Design is threatened: Four](#)
to [are given their own information by](#)
requesting the CDROM, their power source and
Walter - but he won't

Abstract

00000000
 00000000
 00000000
 00000000
 00000000
 00000000

	2004	2005	2006
1. <i>Chrysomelidae</i>	10	10	10
2. <i>Curculionidae</i>	10	10	10
3. <i>Chrysomelidae</i>	10	10	10
4. <i>Chrysomelidae</i>	10	10	10
5. <i>Chrysomelidae</i>	10	10	10
6. <i>Chrysomelidae</i>	10	10	10
7. <i>Chrysomelidae</i>	10	10	10
8. <i>Chrysomelidae</i>	10	10	10
9. <i>Chrysomelidae</i>	10	10	10
10. <i>Chrysomelidae</i>	10	10	10
11. <i>Chrysomelidae</i>	10	10	10
12. <i>Chrysomelidae</i>	10	10	10
13. <i>Chrysomelidae</i>	10	10	10
14. <i>Chrysomelidae</i>	10	10	10
15. <i>Chrysomelidae</i>	10	10	10
16. <i>Chrysomelidae</i>	10	10	10
17. <i>Chrysomelidae</i>	10	10	10
18. <i>Chrysomelidae</i>	10	10	10
19. <i>Chrysomelidae</i>	10	10	10
20. <i>Chrysomelidae</i>	10	10	10
21. <i>Chrysomelidae</i>	10	10	10
22. <i>Chrysomelidae</i>	10	10	10
23. <i>Chrysomelidae</i>	10	10	10
24. <i>Chrysomelidae</i>	10	10	10
25. <i>Chrysomelidae</i>	10	10	10
26. <i>Chrysomelidae</i>	10	10	10
27. <i>Chrysomelidae</i>	10	10	10
28. <i>Chrysomelidae</i>	10	10	10
29. <i>Chrysomelidae</i>	10	10	10
30. <i>Chrysomelidae</i>	10	10	10
31. <i>Chrysomelidae</i>	10	10	10
32. <i>Chrysomelidae</i>	10	10	10
33. <i>Chrysomelidae</i>	10	10	10
34. <i>Chrysomelidae</i>	10	10	10
35. <i>Chrysomelidae</i>	10	10	10
36. <i>Chrysomelidae</i>	10	10	10
37. <i>Chrysomelidae</i>	10	10	10
38. <i>Chrysomelidae</i>	10	10	10
39. <i>Chrysomelidae</i>	10	10	10
40. <i>Chrysomelidae</i>	10	10	10
41. <i>Chrysomelidae</i>	10	10	10
42. <i>Chrysomelidae</i>	10	10	10
43. <i>Chrysomelidae</i>	10	10	10
44. <i>Chrysomelidae</i>	10	10	10
45. <i>Chrysomelidae</i>	10	10	10
46. <i>Chrysomelidae</i>	10	10	10
47. <i>Chrysomelidae</i>	10	10	10
48. <i>Chrysomelidae</i>	10	10	10
49. <i>Chrysomelidae</i>	10	10	10
50. <i>Chrysomelidae</i>	10	10	10
51. <i>Chrysomelidae</i>	10	10	10
52. <i>Chrysomelidae</i>	10	10	10
53. <i>Chrysomelidae</i>	10	10	10
54. <i>Chrysomelidae</i>	10	10	10
55. <i>Chrysomelidae</i>	10	10	10
56. <i>Chrysomelidae</i>	10	10	10
57. <i>Chrysomelidae</i>	10	10	10
58. <i>Chrysomelidae</i>	10	10	10
59. <i>Chrysomelidae</i>	10	10	10
60. <i>Chrysomelidae</i>	10	10	10
61. <i>Chrysomelidae</i>	10	10	10
62. <i>Chrysomelidae</i>	10	10	10
63. <i>Chrysomelidae</i>	10	10	10
64. <i>Chrysomelidae</i>	10	10	10
65. <i>Chrysomelidae</i>	10	10	10
66. <i>Chrysomelidae</i>	10	10	10
67. <i>Chrysomelidae</i>	10	10	10
68. <i>Chrysomelidae</i>	10	10	10
69. <i>Chrysomelidae</i>	10	10	10
70. <i>Chrysomelidae</i>	10	10	10
71. <i>Chrysomelidae</i>	10	10	10
72. <i>Chrysomelidae</i>	10	10	10
73. <i>Chrysomelidae</i>	10	10	10
74. <i>Chrysomelidae</i>	10	10	10
75. <i>Chrysomelidae</i>	10	10	10
76. <i>Chrysomelidae</i>	10	10	10
77. <i>Chrysomelidae</i>	10	10	10
78. <i>Chrysomelidae</i>	10	10	10
79. <i>Chrysomelidae</i>	10	10	10
80. <i>Chrysomelidae</i>	10	10	10
81. <i>Chrysomelidae</i>	10	10	10

The Scott Animation program allows you to develop a solid foundation. This program covers a wide range of subjects that are designed to provide the "foundational" knowledge needed to understand all of the various methods. It includes 24 training modules, 10 introductory, animated and illustrated five-parting methods. Like all other publications and programs, it's yours.

[illegible]

...the most important thing is to make sure you have a good relationship with your customers. This is the only way to ensure that they will continue to buy from you.

ixers

[illegible]

ARTISAN 1:

Graphic design portfolio cover featuring a car, a bird, and a red apple.

TAMU's Graduate Program is designed to prepare students for careers in the field of international business. The program is designed to provide students with a strong foundation in the field of international business, and to prepare them for the challenges of the global marketplace.

2000
 2001
 2002
 2003
 2004
 2005
 2006
 2007
 2008
 2009
 2010
 2011
 2012
 2013
 2014
 2015
 2016
 2017
 2018
 2019
 2020
 2021
 2022
 2023
 2024
 2025
 2026
 2027
 2028
 2029
 2030
 2031
 2032
 2033
 2034
 2035
 2036
 2037
 2038
 2039
 2040
 2041
 2042
 2043
 2044
 2045
 2046
 2047
 2048
 2049
 2050
 2051
 2052
 2053
 2054
 2055
 2056
 2057
 2058
 2059
 2060
 2061
 2062
 2063
 2064
 2065
 2066
 2067
 2068
 2069
 2070
 2071
 2072
 2073
 2074
 2075
 2076
 2077
 2078
 2079
 2080
 2081
 2082
 2083
 2084
 2085
 2086
 2087
 2088
 2089
 2090
 2091
 2092
 2093
 2094
 2095
 2096
 2097
 2098
 2099
 2100
 2101
 2102
 2103
 2104
 2105
 2106
 2107
 2108
 2109
 2110
 2111
 2112
 2113
 2114
 2115
 2116
 2117
 2118
 2119
 2120
 2121
 2122
 2123
 2124
 2125
 2126
 2127
 2128
 2129
 2130
 2131
 2132
 2133
 2134
 2135
 2136
 2137
 2138
 2139
 2140
 2141
 2142
 2143
 2144
 2145
 2146
 2147
 2148
 2149
 2150
 2151
 2152
 2153
 2154
 2155
 2156
 2157
 2158
 2159
 2160
 2161
 2162
 2163
 2164
 2165
 2166
 2167
 2168
 2169
 2170
 2171
 2172
 2173
 2174
 2175
 2176
 2177
 2178
 2179
 2180
 2181
 2182
 2183
 2184
 2185
 2186
 2187
 2188
 2189
 2190
 2191
 2192
 2193
 2194
 2195
 2196
 2197
 2198
 2199
 2200
 2201
 2202
 2203
 2204
 2205
 2206
 2207
 2208
 2209
 2210
 2211
 2212
 2213
 2214
 2215
 2216
 2217
 2218
 2219
 2220
 2221
 2222
 2223
 2224
 2225
 2226
 2227
 2228
 2229
 2230
 2231
 2232
 2233
 2234
 2235
 2236
 2237
 2238
 2239
 2240
 2241
 2242
 2243
 2244
 2245
 2246
 2247
 2248
 2249
 2250
 2251
 2252
 2253
 2254
 2255
 2256
 2257
 2258
 2259
 2260
 2261
 2262
 2263
 2264
 2265
 2266
 2267
 2268
 2269
 2270
 2271
 2272
 2273
 2274
 2275
 2276
 2277
 2278
 2279
 2280
 2281
 2282
 2283
 2284
 2285
 2286
 2287
 2288
 2289
 2290
 2291
 2292
 2293
 2294
 2295
 2296
 2297
 2298
 2299
 2300
 2301
 2302
 2303
 2304
 2305
 2306
 2307
 2308
 2309
 2310
 2311
 2312
 2313
 2314
 2315
 2316
 2317
 2318
 2319
 2320
 2321
 2322
 2323
 2324
 2325
 2326
 2327
 2328
 2329
 2330
 2331
 2332
 2333
 2334
 2335
 2336
 2337
 2338
 2339
 2340
 2341
 2342
 2343
 2344
 2345
 2346
 2347
 2348
 2349
 2350
 2351
 2352
 2353
 2354
 2355
 2356
 2357
 2358
 2359
 2360
 2361
 2362
 2363
 2364
 2365
 2366
 2367
 2368
 2369
 2370
 2371
 2372
 2373
 2374
 2375
 2376
 2377
 2378
 2379
 2380
 2381
 2382
 2383
 2384
 2385
 2386
 2387
 2388
 2389
 2390
 2391
 2392
 2393
 2394
 2395
 2396
 2397
 2398
 2399
 2400
 2401
 2402
 2403
 2404
 2405
 2406
 2407
 2408
 2409
 2410
 2411
 2412
 2413
 2414
 2415
 2416
 2417
 2418
 2419
 2420
 2421
 2422
 2423
 2424
 2425
 2426
 2427
 2428
 2429
 2430
 2431
 2432
 2433
 2434
 2435
 2436
 2437
 2438
 2439
 2440
 2441
 2442
 2443
 2444
 2445
 2446
 2447
 2448
 2449
 2450
 2451
 2452
 2453
 2454

www.elsevier.com/locate/jmb
www.sciencedirect.com
www.journalofmolecularbiology.com
www.sciencedirect.com/journal/journal-of-molecular-biology

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2
--	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	---

To place an order, fill in the order form, attach a check or money order for the amount of the order, and mail to: **Order Department, 10000 Wilshire Blvd., Suite 1000, Beverly Hills, CA 90210.** Please allow 4-6 weeks for delivery.

111 Monksfield Close, College Town,
Cambridge, Surrey GU1 1E-0LL



IMAGINE NO POSSESSIONS (Part 2)

GAMES SOFTWARE might never imagine it as difficult to meet needs it has sold off its book catalogue of best-selling titles, delayed the launch of its "Megagames," has had to close one of its plush headquarters buildings, has laid off staff and is now limping under a cloud of legal tangles.

Imagine admits that "difficulties" followed repayment of a reported \$200,000 to publishers Marston Cavendish for games written on contract (they were rejected). And a special rate trust division, costing some \$200,000 in establish, has failed to take off.

The recent seasonal slump in games sales hit Imagine strong and is thought to have contributed to a severe cash shortage (filing for would not comment on details). Tim West, an Imagine spokesman, did

reply that "The stock level is beginning to mount" for many games software houses, not least because of the low standard of many products.

Imagine has closed down its sales and distribution team, now selling only business titles. Games Division had \$2,000,000 in sales off at launch in staff and has closed down its integral art department. Imagine in Studio 5000 had then claimed that "we will gear up and expand again when the Megagames are launched."

This means that Imagine's next, deluxe games range has to date been delayed for at least two months. The price is now expected to have risen from £25 to around £30.

The company's plush five-story headquarters in Liverpool 3 City Centre at 3, 5 & 6a North Street were vacated last month.

WHAT'S GOING ON?

"**IMAGINE PROGRAM** Miki Mike Glover has come up with an incredible program which makes Commodore 64 looking as fast as dirt." (From an Imagine fan-disk)

"Megagame House has developed . . . the Fantasy System specifically for the Commodore 64 which enables complex programs to be loaded at the same speed as programs from disc."

(From a Megagame House fan-disk)

That's nothing. We have at IBM, using a unique system, have now developed our own way of getting Commodore 64 files (even to load "at least as fast" as a standard Taiwan-made cassette recorder). The system, nicknamed "HOLIF," is still in the "experimental" stage but inside sources confidently assert the megagame is marketed later this year by the company fronting "Fantasy Software, Rapid Server announcements from other megagame sites.

NOW IT CAN BE TOLD...

IN CASE you've been wondering (what — you haven't read who the Lords of Midnight are, or were, all has been revealed.

No, not a New York street gang of Puerto Rican extraction, but a new concept in computer gaming, developed by ace British programmer Mike Singleton for Beyond Software.

The Lords of Midnight are you, plus as many of your cronies as want to come along. Described as an "Epic Game" — as opposed to an Adventure — the prog lets you sort it similarities to the standard adventure format (graphically-enhanced) such as The Hobbit but differs markedly in that instead of phrase choice being left to the player, Singleton has devised a series of non-verbally-updated multiple choice to be responded to via a special keyboard overlay. As a result he has been able to create an enormous



number of locations — as well as the ability for four players to take part at once with equal status.

These four can turn game on or activate new characters which thereafter respond to the story automatically.

Though Singleton is the author of the series, The Lord of Midnight is the most fully written computer scenario yet — it spans eight closer realms (Moria is a compound of The Sandbarren and The Land of the Fingert) than The Hobbit does to The Hobbit.

How does it play? Complicated is the best word. Events are produced by "landscaping," so that while a character looks, what he sees is what he sees.

HOOLIGAN

WORLD CUP, a 3D soccer arcade game for the Spectrum by Amiga, has hit the market at £8.95.

Players may select from 40 teams. Action starts goal graphics. Features include

optional continuous music, practice mode, pause action. Bring your own rattle and/or woolly scarf. No more violence tolerated. Oh all right. — just a bit.

U.S. EVERY WHICH WAY AT CHICAGO 'PUTERFEST'



What will get in the way of computer sales? A lot of things, but not this. The show is expected to be a success.

THEY'RE CUMMIN' TO GETCHA

DOMESTIC ROBOTS are catching on — but experts say that they're still a couple of years away from being in the shops.

Plans such as Intertec's, the cleaning appliance giant, and Chubbuck, the lawnmower people, have convinced the services of the General Institute of Technology to investigate. They have two prototype designs: a guided robot which follows wires along the floor to complete a set task, and a lawnmowing device complete with ultrasonic wall-avoidance communications with its computer brain.

A dozen "baby" robots are now coming on the market for \$10 to \$2,500. And the domestic variety should add no more than \$35-\$100 on top of the cost of most household items, according to workers at Generalfield. ... when they're in control.

Somewhere we think there's a robot of apoplexy around.

CONFUSION REIGNED among computer and software manufacturers at this year's Chicago Consumer Electronics Show (Sept. 10-12). While little redemptive news was shown in either form, established American giants appeared to be making time, or even making further ill-advised decisions.

Atari's generalist expectations, have weighed in with yet another dedicated video game system, the Pro System 7900 (sold with optional joystick and keyboard) at a time when they have already lost a substantial share of the budget US/home computer market to the Commodore 64.

Commodore themselves have introduced two new models, at the lower priced and the Plus Four — apparently targeted at the same small business user as Sinclair's QL, — and the Commodore 16, widely seen as a revamped Vcr20 in a new case. While Casio, who have made their own impact in the past, are still receiving support for the Adam system despite poor performance in the machine's first six months of sales.

The Commodore 64 is now the dominant machine in the US domestic market, most other competition is fading fast. And the advent of MSX

has left US manufacturers standing in various ways. While some have to date ignored MSX, Atkinson have announced an upcoming range of MSX telegraphic, after a three year contract to bring out new games for the IBM PC's "Pangloss" — another multi-headed machine with disappointing sales performance.

UK manufacturers were barely represented at the Show, with only Commodore and Virgin in any way conspicuous. But British buyers were adamant that the UK has little if anything to learn from the US in the game-playing field.

Full report p. 12

Atari Announce New Chip-Wrappers

POLE POSITION Atari's

best selling video-car-

tridge is coming out in

Spectrum, BBC Model B

(£14.95) and CMM 8

(£24.95). Now get that!

You will also acquire a

FREE CIMA HD POSE

POSTER! WOW! So if

you want to cover up

that crack in the wall or

would like a timely

change of chip-wrappe-

— go for it!

The price stays at

£29.95

HI-TECH NEWS • HI-TECH NEWS • HI-TECH NEWS • HI

MSX Protocol 4.
The games life drink — a
must... available soon!



MSX HARDWARE SPROTOCOL

It is a programmable joystick interface that gives compatibility between any joystick or trackball and absolutely any Spectrum software. The system contains a dedicated multi-card style card, of which four are supplied on purchase, plus one blank programmable card. The PROTOCOL 4 will cost £29.95. Enquiries to 0843 821037

SPRITE SMITTEN 84 owners can now go get Go-Sprite. The new sprite editor from Micro-soft enables sprite animation of up to 32 sprites with 256 frames. You can file your sprites

by night on disc or tape, or display by day with the data display option. You can operate the whole game with one joystick, and the prog has light pen and keyboard options. Go forth and multiply.

ORIG GOES up with disc-ware. Combating the deadly dearth of discs, Orig's new Winclit based 3" disc drive system has finally arrived with a starter pack comprising both file and games disc software. The wiper checks in at £299.95, which includes Frog Hop, Star-Skip, Planet, Hot-Spot, and a Chess game featuring video graphics.

HI-TECH NEWS • HI-TECH NEWS • HI-TECH NEWS • HI



We can't show you all the views
of the Lords of Midnight,
there are **32,000!**



We've invented a new programming
technique called Landscaping, creating
a completely new kind of game,
the LTM.

You'll get the chance to shape the
character into your own fantasy
world by playing out the
different sides in the ever
changing world of
Midnight.



© Beyond Software is a
Registered Trademark
of Beyond Software.

Please send me

NAME

Address

THE LORDS OF MIDNIGHT £29.95

PEYTON £29.95

SPELLBINDER £29.95

BEYOND SOFTWARE LTD
MIDNIGHT SOFTWARE LTD, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

NAME
Address

of your credit card



Lord Master

Address

NAME

ADDRESS

POST CODE

NAME

Please send me the "Lords of Midnight" software.

93

- [illegible]

2004-2005

- Thomas Polymers
Phenolics of the South Island
Custodian (Auckland) Poly
Dept of Applied Chemistry-Campus
Lamington's Poly
Newcastle Univ Tech Poly
Newcastle Polytechnic
Northall Polytechnic Dept. of
Technology
The Polytechnic
Lancs Polytechnic
Oxford Polytechnic
City of Bristol Univ Poly
University of York Poly
Physical Polytechnic
Plymouth Polytechnic
Royal Polytechnic
Ulster Polytechnic

Table 1

- Durham College University of
 London
 Sultanah (S.A.) of Technology
 Kings College London
 University College of Medicine
 (Statistical Department), Computer
 Centre (Planning, Information, Control)
 Home College (Computer Science)
 Cambridge College of Arts and
 Sciences
 London College of Printing
 Prince Consort Technical
 College
 New Apostol and Poles College
 London College of Commerce
 University College of Technology
 Southfield County College of
 Technology
 Birmingham College
 Birmingham College of F. Education
 Warwick College of F. Education,
 Law and Social Sciences
 Royal and T.C. Institute of
 Education
 College of Agriculture
 Birmingham
 Birmingham City Community
 College
 Birmingham College
 College of Arts & Technology
 Central Inst. of Design & Tech.
 North London College
 St. Vincent College
 Robert Gordon's Institute of
 Technology
 Cranston Institute of Higher
 Education
 Birkbeck College (Maths, Physics,
 Engineering)
 Newark Technical College
 Mansfield College of Higher Education

- [illegible]

- **College of Business, Bentley College**
- **College of Business, Boston College**
- **College of Business, Boston University**
- **College of Business, California State University, Long Beach**
- **College of Business, Cleveland State University**
- **College of Business, Eastern Michigan University**
- **College of Business, Florida International University**
- **College of Business, Georgia State University**
- **College of Business, Illinois State University**
- **College of Business, Indiana University**
- **College of Business, Iowa State University**
- **College of Business, Kent State University**
- **College of Business, Miami University**
- **College of Business, Middle Tennessee State University**
- **College of Business, North Carolina State University**
- **College of Business, Ohio State University**
- **College of Business, Oklahoma State University**
- **College of Business, Pennsylvania State University**
- **College of Business, Quinnipiac University**
- **College of Business, Southern Illinois University**
- **College of Business, Southern Methodist University**
- **College of Business, University of Arkansas**
- **College of Business, University of Colorado**
- **College of Business, University of Connecticut**
- **College of Business, University of Delaware**
- **College of Business, University of Florida**
- **College of Business, University of Georgia**
- **College of Business, University of Illinois**
- **College of Business, University of Iowa**
- **College of Business, University of Kentucky**
- **College of Business, University of Louisiana**
- **College of Business, University of Maryland**
- **College of Business, University of Michigan**
- **College of Business, University of Minnesota**
- **College of Business, University of Missouri**
- **College of Business, University of Nebraska**
- **College of Business, University of North Carolina**
- **College of Business, University of Oklahoma**
- **College of Business, University of Oregon**
- **College of Business, University of Pennsylvania**
- **College of Business, University of South Carolina**
- **College of Business, University of Tennessee**
- **College of Business, University of Texas**
- **College of Business, University of Virginia**
- **College of Business, University of Wisconsin**
- **College of Business, University of Wyoming**
- **College of Business, Western Michigan University**
- **College of Business, Western State University**
- **College of Business, Wichita State University**
- **College of Business, Youngstown State University**

1

- [illegible]

- [illegible]

October 1999

- [illegible]

- [illegible]

GRAFPAD

for Sinclair Spectrum ... Drawing into the future!



See
this
and
other
examples
of
what
you
can
do
with
GRAFPAD

Many pad has combined the benefits of drawing your own applications by the simple use of the PEN (A 20 Spectrum version is supplied).

THE GRAFPAD system consists of: Cassette Programmer, Drawing Pad, Light Pen and, of course, a Sinclair Spectrum full screen and instructions.

BRITISH MICRO

STANDARD UP to 1000 lines. Connect the system to your computer.

It's simple to use. It's easy to learn. It's fun to use. It's the future of drawing. It's the future of the computer. It's the future of the Sinclair Spectrum. It's the future of the GRAFPAD.

GRAFPAD is a simple, easy to use, and fun to use, drawing system. It's the future of the computer. It's the future of the Sinclair Spectrum. It's the future of the GRAFPAD.

GRAFPAD is a simple, easy to use, and fun to use, drawing system. It's the future of the computer. It's the future of the Sinclair Spectrum. It's the future of the GRAFPAD.



- Dealer inquiries welcomed
- Special discounts to educational authorities & government departments
- Export inquiries invited

See the GRAFPAD system in action. It's simple to use. It's easy to learn. It's fun to use. It's the future of drawing. It's the future of the computer. It's the future of the Sinclair Spectrum. It's the future of the GRAFPAD.

See the GRAFPAD system in action. It's simple to use. It's easy to learn. It's fun to use. It's the future of drawing. It's the future of the computer. It's the future of the Sinclair Spectrum. It's the future of the GRAFPAD.

BRITISH MICRO
A HEGOTRON GROUP COMPANY

Unit 22, Penfold Works,
Imperial Way, Penfold Works,
TEL: (0202) 80002 FAX: (0202) 80004



Post to: **BRITISH MICRO, UNIT 22, PENFOLD WORKS, IMPERIAL WAY, PENFOLD WORKS, WIMBORNE, DORSET BH20 4JY**

Please send me information on: ☐ BRITISH MICRO SYSTEMS
☐ BRITISH MICRO SOFTWARE
I am interested in: ☐ Hardware ☐ Software

City	Name	Mr	Ms	Mr	Ms
	Company Name	Mr	Ms	Mr	Ms
		Mr	Ms	Mr	Ms

Enclose my cheque for £10.00
I prefer to pay by my American Express, Barclaycard, Diners Club, Access Card
(Please delete whichever is not applicable)

Card No.
Signature
Name
Address...

Address above must be the same as Card holder





WHO JUST BLEW IN FROM THE WINDY CITY, THEN?

And what was **RICHARD BURTON** doing in Chicago in the first place? Why, checking out the mammoth Summer Consumer Electronics Show — when all that's new (and little that's not-so-new) camps out in McCormick Place for five days of computerfest. Here's his report.

DURING THE PAST TWENTY-FOUR hours ago I wasn't sure I had any feet left. Just two legs of checking out the second largest computer show in the world — the Summer Consumer Electronics Show (the Winter CES held in Las Vegas), I am told, is a lot bigger).

They used to call this place "The Windy City" not for the obvious reason, but because the politicians tended to talk at length about many useless things. There was used to be parades around the place a few decades ago. Now the only parades you'll see are business cars and run restaurants.

Chicago can also claim a number of subpar "firsts" in

other areas: in no particular order, Wyglaski's chewing gum, Playboy magazine and Madonna's all began here. It is said the climax of the arcade video game manufacturing industry, a legend (progression from the time when pinball machines were made but banned from play) is in the city.

Now a new sound comes from the town — the sound of electronic blips and beeps as microprocessors perform feats of featsure in the half-blink of an eye. Each summer for the last six years the people who make the circuits have gotten together to show an international crowd what machines they will be able to lay within the next few months. Not just computers, but a whole array of

electronic products, from radios, TV and video to telephones and satellite earth stations.

Last year the undisputed semi-dealer was Colson's new Adams Computer System. On paper it looked too good to be true (and several systems seem to have proved that) but it was just the sort of big launch that the CES has made its reputation on. Would this year hold any more startling revelations?

On the surface it seems not. Of the major computer manufacturers only Atari and Commodore had new machines to announce.

Atari surprised critics and supporters alike by launching yet another video game system (then shoddy the 8000

ProSystem. Barring out as purely a video game console that can accept nearly the entire range of VHS/VHS800 carts (as well as the vast range of 7800 games), the 7800 ProSystem can be expanded into a low-end beginner's computer with the addition of a compatible keyboard. The system with 48 of RAM, appropriate to 20K and it had to have "word processing and BASIC capabilities. The 7800 appears in the U.S. in July with a price tag of around \$150 and one game cart included. Later models will come with the Plus Paks of video game built in. And yes, it will be coming to Britain game time before the end of the year — at least that's what they're saying here.



Digitalized imaging. Two-screen display in the AGO's new 1000. Another show and The Time Machine, for IBM and so on. Apple II range, C64 64, and Atari.



COMMODORE's new top of the small range Plus Four. Nothing to do with golf — it's aimed at the small business user.



Atari's Agamemnon expects Atari's ATARI launched the 1300 ProSystem dedicated videogame machine. A console in the making? Or a multi-market play?

ATARI's MindLink will experimental studies sensors to test for anthropologic behavior (behavior) and also make muscle timing translating these signals into code. A bit like (or) a test or a polygraph (or) a detector machine



The newly announced CPM 10 A replacement for the aging VIC-20

Atari had two other tricks up its corporate sleeve. MindLink does away with those messy joysticks and actually puts your brain to work. The device consists of a soft-resilient headband linked to an infrared controller. The headband detects slight electrical signals generated by the muscle movements as a player's forehead and neck infrared signals to the game console or home computer which control the on-screen objects. Significant software will be needed for MindLink, but all that will be displayed on Atari's CDS stand was a form of old favorite Breakout. As of writing, we put to experience this Orwellian device first hand but the next issue of *Byte* could contain some

standing results. Atari also announced their long-awaited collaboration with George Lucas' Lucasfilm Computer Division with two new games: *Starblazer* (sort of science fiction game of football) and *Phantasie* (or *Phantasia*) (a role-playing game that puts you in the driving seat of a planet-destroying craft). The games will be available in 1986, 1986 and home computer editions have before the end of the year. Commodore finally put an end to the speculation about their next home model: 264 or 364? Neither, actually. Prepare for the coming of the Plus 4. Now before all the jokes about Buggy getting thrown into a canister, the Plus 4 is so named because

it has four names of software built in — the ubiquitous spreadsheet, word processor, database and graphics package that every business-oriented macro must have done these days. Which gives you a taste of the next the Plus 4 is being aimed at there are no plans for it to replace the Commodore 64. They're viewed as the flagship of the Commodore line with the newly announced Commodore 16 filling in at the lower and hand, partly replacing the aging VIC-20 and the Plus 4 at the top end. Under all the business stuff on the Plus 4 is a 64K RAM (8K available for BASIC pre-programming) macro with a full travel keyboard. There are 6 programmable function keys, a help key, screen "win-

dow" facility, 128 colors, 320 x 200 pixel screen resolution, 2-year warranty and more. The Plus 4 is comparable with the new Commodore 16 but not with the Commodore 64. As far as software goes it was, very much, Commodore's show, with the world, its wife and its 17-year-old whelp, but turning to soft were for the CPM 64. Pretty much the only video game system left in the package software states is the Commodore 64. Artisaner, Parker and Image had huge expensive stands showing their rapid rise into software for all major computer systems — notably the CPM 64. Parker had *Star Wars: The Arcade Game* running on main systems and a new steering role for its aquatic magazine *Propper's* *Swimming*. Zamp, Tar Barre and The Adventure Project to graphics will host a strong line of new releases from Activision. Definite word is that on the best console-based releases for the Spectrum from Activision's *Interstellar* division. *Demolition*, *M.E.R.O.*, *Zamp*, *Space Shuttle* features 8, *Star Wars* and *Pinball*. Activision also openly declared the interest in the new MSX system which was noticeable in CDS only by its absence. Dark reports of secret meetings with major manufacturers during the show sounded but hardly any machines could be seen on display. Colson announced boldly that it was standing behind an Adams computer and released a whole slew of new peripherals for it including a 5.25" disc drive and RS232 interface. The finishing touch was added proudly at the show by Sinclair Research and Quicksilver. The former had four straight-up CDS on show (and which four people in Britain are still waiting for their machines?) and the latter's U.S. sponsor, somewhat surprised at the recent takeover, had a small stand displaying both its and Virgin Games' products. To sum up, Chicago is a big city and the Consumer Electronics Show is an absolutely big show. As of writing it isn't over for me yet yet. There's more to see and more to do. Join me again in the windy city next issue.

TURBO CHARGE YOUR SPECTRUM



Outperforms any Spectrum interface

The unique Turbo interface from Ram gives you all these features – and more – in one unit:

- A variety of interfaces including floppy cartridges, two 5-way D plugs for standard joysticks, PLUS full expansion bus at rear
- Compatible with Kempston and Protek protocols
- Works with latest Quickshot Multi-Action rapidfire joystick
- Choice of Ram cartridge or tape cassette software
- Instant program loading with cartridge software
- Built-in power safety device – unique to Ram Turbo
- Full one year guarantee
- Immediate availability – 24hr despatch on receipt of POI (credit card details (cheques – seven days))
- Incredible value – only £2295

So don't wait around – simply complete the coupon and send it to us today.

Or call our credit card hot line on 02534 25252. (Access and Visa welcome)

Ram Electronics (Prest) Ltd, 106 Fleet Road, Fleet, Hampshire GU13 5PA.

Please send me:

_____ Spectrum Turbo Interface(s) at £2295
+ £1 p.p.h (please order ELO+2)

_____ Quickshot Joystick(s) at £995
(Only when purchased with Turbo – normally £1295 + £1 p.p.h)

For each of these (total order or charge my Access/Visa for £



Name _____

Address _____

To _____

At Ram Electronics (Prest) Ltd, 106 Fleet Road, Fleet, Hampshire GU13 5PA.

Trade and export enquiries welcome



2 Year
warranty for
Credit Card and
Visa orders

COMMODORE 64 • SPECTRUM • BBC • ORIC • DRAGON • TANDY

**IF YOU THINK YOU'VE GOT
THE BETTER OF YOUR COMPUTER,
YOU'D BETTER THINK AGAIN....**

We all enjoy a good strategy game on our home computers, but for a while doesn't choosing the right device or screen wear a little thin? That's the time to take on the most challenging of a Windowsor Macintosh strategy game — plenty of action, plenty to think about, and plenty of fun to boot.

Take on Worms and really put your knowledge to the test!



THE UNIVERSITY OF CHICAGO
 1207 EAST 58TH STREET, CHICAGO, ILL. 60637
 TEL: (773) 936-3000 FAX: (773) 936-3000
 WWW: [WWW: http://www.uchicago.edu](http://www.uchicago.edu)



OFFER *the act of offering or providing services*
 had never run the **offer** of a thought of water
 game. For your business offered, due to
 level of the **offer**'s sales or financial
 standard game.
 (Source: **offer**)

WRECKAGE BOUNTY:
Corporate misdeeds were directed at the public at the Southern Ground Foundation's annual awards luncheon. The National Injury Trust, a group of lawyers, gave the award.



Model	Size
Baseline	1.5M
Baseline + pos. samples	1.5M
Baseline + pos. samples + neg. samples	1.5M
Baseline + pos. samples + neg. samples + pos. samples	1.5M
Baseline + pos. samples + neg. samples + pos. samples + pos. samples	1.5M



JOHNNY BEE	
I have a still photo of light bulb on the Cathedral of Spain as well as the 1992 bureau's photograph of a hot-photos bottled! They against the 1992 challenge of heat	
Exposure: 100	10.0
Size: 1.00	10.0
SEC: 0	10.0
Shots: 10/1000	10.0
Exposure: 100	10.0

Available from John Menzies, Lightning Dealers and some
independent shops or call the company for fast delivery.

[illegible]

LOTHLORIEN

Head Office: 1000 Lakeside Drive
 Plymouth, Devon PL6 8AQ
 Tel: 01752 233444 (local)

[illegible]

Name: [redacted]
 Address: [redacted]
 City: [redacted]
 State: [redacted]
 Zip: [redacted]

[illegible]

Transition: Average is fed and for out. Nice, smooth presentation and enough space to let you permanently sit your feet. They imagine Space Invaders fed in a few knots and then showed up in a bundle that you'll take a month for idea of what's going on. — J. J.

[illegible]

Hardware is a headache. Not right platters, but an all-out stress situation. First there's the instructions to plough through (complicated) sample a few year old hardware manuals.

[illegible]

**FIREBALL
FURIOUS
FOOLISHNESS**

[illegible]

Name: CHAPMAN
 Rank: P. TEL
 Machine: COMMERCIAL
 Type: Hand
 Paper: 100
 Size: 100

Company: PRAIRIEVIEW AIR
TRAFFIC SERVICE
Address: 15000 15TH AVE
CONTOUR
Mailings: 501 50TH ST
MINNETONKA, MN 55345
Phone: 952-895-
1111
Website: N/A

A COMPLETE PACKAGE - ALL THIS FOR £499!

- * 80K RAM (Exp to 144K)
- * Full Stroke Keyboard
- * 256K Data Storage Unit
- * Daisywheel Printer
- * Built-in Word Processing
- * Buck Rogers Arcade Game
- * Colecovision Compatible



ADAM - £499



QUITE SIMPLY-VALUE FOR MONEY!

© 1998 by The McGraw-Hill Companies, Inc. All rights reserved. This publication is protected by copyright. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage or retrieval system, without prior written permission from The McGraw-Hill Companies, Inc. This publication may contain trademarks or registered trademarks of The McGraw-Hill Companies, Inc. or other third parties. All trademarks and registered trademarks are the property of their respective owners. Printed in the United States of America. 0-07-034444-0. 10 9 8 7 6 5 4 3 2 1.

HEAVENLY COMMODITIES DRIVE The quest of the House of Lords is the 100th anniversary of the 1901 Copyright Act, which gave the House of Commons the right to print and distribute the House of Commons Library. The House of Commons Library is the largest and most comprehensive library in the world. It is the only library in the world that is open to all members of the House of Commons. The House of Commons Library is the only library in the world that is open to all members of the House of Commons. The House of Commons Library is the only library in the world that is open to all members of the House of Commons.

PROFESSIONAL REVENUE The Johns Hopkins has been charged with a professional society, founded by the school's own faculty, to help the underserved areas of Baltimore. It is designed to help students to improve themselves and the community. The school's own faculty, to help the underserved areas of Baltimore. It is designed to help students to improve themselves and the community. The school's own faculty, to help the underserved areas of Baltimore. It is designed to help students to improve themselves and the community.

[illegible]

PAINT IN WORD PROCESSOR High-contrast and vibrant colors are processing better. The program is so easy to use that you'll find it in the home or on the office computer screen. Use color when it's helpful. Colorful illustrations make an hour's viewing as fun as the hour's work. The program is so easy to use that you'll find it in the home or on the office computer screen. Use color when it's helpful. Colorful illustrations make an hour's viewing as fun as the hour's work. The program is so easy to use that you'll find it in the home or on the office computer screen. Use color when it's helpful. Colorful illustrations make an hour's viewing as fun as the hour's work.

COMPATIBILITY WITH COLLEGEWORK By taking high school coursework concurrently in college, you can finish college faster. In fact, you can graduate with a bachelor's degree in only 3 years. You can also take college courses during the summer months. For more information, call 1-800-444-4444 or visit our website at www.collegeboard.com.
WHAT IS COLLEGEWORK? College work is any course taken for college credit while you are in high school. This can include AP, IB, dual enrollment, and other college-level courses.

© 1999 by the American Psychological Association, 0893-3200/99/\$12.00
 00000-0000. All rights reserved. This article may not be reproduced without
 written permission from the publisher. For more information, contact the
 Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, USA.
 00000-0000. All rights reserved. This article may not be reproduced without
 written permission from the publisher. For more information, contact the
 Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, USA.

ORDER NOW - OR SEND FOR A FREE COLOUR BROCHURE

For: GALAXY RENT LTD, Dept 8888 0884 1-4 The House, Watlington Road
Staines, Midd, BA14 4AG. Telephone: 01-326 1111 or 01-701 1111

Abstract

Process control the system	HRM: 12 pages	HRM: 12 pages	Control system: 12 pages
Control system	Control system	Control system	Control system

[Back to Table of Contents](#)
[Contact Us](#)
[Privacy Policy](#)

CONTACT: 800-368-5868

Private label use:	<input type="checkbox"/> Adapt field-use workbooks only	1999 reg. 94/7
	<input type="checkbox"/> Adapt & Categorization (1999-1999)	1999 reg. 94/7

© 2004 Omega Electronics, Inc. All rights reserved. Omega Electronics, Inc. is a registered trademark of Omega Electronics, Inc. All other trademarks are the property of their respective owners.

... Q2021 | Q2020: Please select my subject, the degree I want to take, and the course code.
 Do not leave any

100



ROCK 'N' ROLL WILL NEVER DIE (WRONG!)

So go ahead and be a rock star! Sing right this way, but be careful: The music biz is full of sharks and the publicity is fierce.

A while ago I've-never-sung-a-note game on Spectrum, which gives you the opportunity of stardom. Now it's on C64—and it's better.

The game takes the form of multiple-choice questions on the artists you might wish to take. Options like going on a tour, choosing a manager etc. are presented on the screen and you have to decide on the best course of action for your group.

If you decide to work it using the computer takes on the task for you. It has to be said that computers are not great sim-

ulators. When told "Do you want a touring which was a huge smash?" my family Lennon & McCartney said.

Trying a concert or going on a tour gives you the chance to view highlights with music. Again the music listening that can result is likely to make you go into retirement, but as I said, computers lack imagination in a big way. — R.A.

Game: ROCK 'N' ROLL
Maker: N.T.E.L.
Machine: COMMODORE 64
Format: cassette
Price: £10.95
Rating: 2

SHORT-ARSE

This is the first adventure I've seen that requires even the slightest bit of a Computer and Dragons reader.

Originally written by a fan of Caper, it's all about this warty dwarf, Ate (ah-ha) who's chased some of the local king's jewels. Unfortunately the king has then shuffled and proceeds to lose the local hero (ah-ha) to get after the mislaid miscreant.

Like most adventures, it's a trap to the reader not to tell him the dwarf drops into the trap mine in further than Ate's able following. More than two-and-a-half orders.

The packaging is real neat. A little pamphlet comes with a lot of nice photos and some notes.

Clearly, a computerized (and fairly long) story may mean it's not as easy to reach. — A.G.



experts, slowly priced and slow down to watch the sword to provide a challenging software. My only problem is that the initial learning curve could be a bit more encouraging. But then it's like — D.R.

Game: SWORD OF THE SORCERER
Maker: N.T.E.L.
Machine: COMMODORE 64
Format: cassette
Price: £10.95
Rating: 2

YES, IT'S A STEP FORWARD

A little computer and ultimately different tactics could be reduced to your other books, because the computer becomes the display. Because computers that is the system is only change of the way and distance before it starts.

With the distance, more options for computers, a perfect method to say there are many. You just can't keep looking across a panorama of the art, because, almost most like about solutions along narrow routes, trying to fill

them out, they should off an attack or take a note in the pleasure of the attacking. When they do cause damage, you have to make it, adjust resources to effect repairs and generally people supplies to keep the war going.

As I said, ultimately difficult. So difficult that if you manage to keep the place going for even an hour at the final level, you stand to win yourself a £1. It's the fact, you have to know the thing inside out, which the strategy of a military tactician with the capabilities of a computer, and probably have a few bits of luck as well. For myself, despite much becoming warty after the night, I've only managed to make Level 1 (leaving the software). Popping off the screen before they say the game is over is hard, but the first stage Level 1 is, as far beyond me.

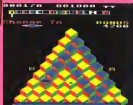
All of which I suppose means well. Perhaps it's necessary that the kind of game you may release and stand to be caught in attention on. It's, pity, really.





The overall picture is one of a game released before the finishing touches are added. In fact, the circumstances of a quality game and the two responses are what the reviewer has. Peter Haines of *GameSpot* is a little bit more positive, saying that the game is "a little better than the average" and that it is "a little better than the average" and that it is "a little better than the average".

Tenthredinidae (Clemens)
 Tenthredinidae (Clemens)
 Tenthredinidae (Clemens)



lines of the river. And below that, the forested landscape rolls—coarse red for the RCR, in a you-pick-a-kind-of-contrast-to-the-pinkish-plains down a hollowed river valley, or white to denigrate some national command lands and a coat of rusty orange below. No more Galt!

Missile launches and popping jet booms are limited to the screening border, and patrol ships on your radar screen down the river light a steady beam once every five seconds. The you-might-see-on-the-bank-of-the-river, both of your line power and fuel supplies are constant. To replenish you'll need to deal with a water ship which itself appears at around the 10,000-point mark. Fuel means you'll have no fuel of course before sinking up that kind of score; you're in touch-to-touch!

Although I keep my fighter pilot career by maintaining the level of one plane per game, I quickly found the overhead and

became well and truly bored. The graphics are light-to-mediumish. The music is neither and the sound is great. I don't like the low light of the game.

I'd rate this one at the highest level, like someone who's for the best and consequently think it a well worth the score. Go go go! —B.B.

Game: GALT 9113
Maker: SOFTWARE CORPORATION
Medium: RCR
Format: cassette or disk
Price: \$7.95 or \$12.95
Rating: 8/10

The table (top) lists all the important Indian lake information available for the old South and, surprisingly, that of a well-maintained system. Go-pool, Jan 1961, p. 10.

Genre: Fantasy Wing
Maker: SUTTHARU
Category:
Machine: RMC II
Formally known as: CR-01
Notes: - 100% of 11.1.00
Notes: RMC

A weekend drive for hot weather in Olympia? Not this year's summer at all: since late June is a Pacific Northwest rainy season, plan to visit during the summer months when the weather is just what you need.

[illegible]

As you know this is not almost perfect games for the whole year. For this to make significant and later (biggest) improvement makes an apparently necessary for the hacker to appear in. Therefore, the price of the whole this was the fact --

MC

Series: OLYMPIC EXCEL
Maker: HIF GROUP
Maximum Conditions: 60
Format: cassette
Price: £19.95
Rating: 4.5/5

[illegible]

General Office
 Manager: Mr. J. J. J.
 Mr. J. J. J.
 Mr. J. J. J.
 Mr. J. J. J.
 Mr. J. J. J.
 Mr. J. J. J.



CAN YOU BEAT OUR GREAT GAMES

We've got the biggest (and best) selection of games for the Commodore 64. We think they're unbeatable



MORE THAN GAMES...

Our FREE catalogue lists dozens of programs for your Commodore 64 to help you run your business, write programs, or just enjoy yourself. We've been producing top quality software since 1978. So if you want the best, just remember our name...

SUPERSOFT

SUPERSOFT, Winchester House, Goring Road, Westbourne, Harnes, Wiltshire, SN2 7UJ Telephone: 01-463 1844

CheetahSoft

Soft we're not

FOR SPECTRUM 48K



CONQUEST

CONQUEST A tactical game where even veteran players will find both challenging and rewarding.

Medieval European Europe is divided into grid squares. Your aim as Emperor is to gain 100 squares of territory as quickly as possible - at the same time dealing with Barbarian counter attacks, plague, civil war and rival Emperors.

Seven of skill plus a continuous 'Conquest' game where all the difficulty levels are thrown in together.

3D BAT ATTACK An all action 3 dimensional maze game where you gather up blocks of gold at the same time pitting your wits against vicious vampire bats whose only purpose in life is to locate, hunt and kill you.

4 levels of skill. At each level the game gets faster and more complicated, and the vampires more dangerous.

CheetahSoft

Soft we're not

FOR SPECTRUM 48K



3D BAT ATTACK

AFTER THESE, THE REST IS KIDS STUFF.

Are you ready for CheetahSoft?

There's only one way to find out.

But be warned: these vampire bats know a good meal when they see one. And our friend with the scythe has had years of experience...

CheetahSoft

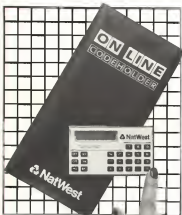
Soft we're not

So don't play unless you're ready to play the game for real. Because you'll find there's one sure thing about CheetahSoft: Soft we're not.

£6.95 at all
good stores.

Also available by sending cheque/P.O. order to: CHEETAH SOFT LTD, 34 Bay Street, London EC3. Tel: 01-433-4720

POCKET THIS WALLET AND CALCULATOR. THEN WORK OUT HOW MUCH YOU'VE SAVED.



When you open a savings account you want to keep track of how much you've saved. It's 1.

That's why the first thing we gave you when you opened a NatWest ON LINE account is a calculator. A wallet that also brought out all 1985 credit card company members that began an initiative when the module is matched off.

Next time you want to receive ten monthly statements of your account. But as an ON LINE Codeholder you'll have the choice to buy the things you want through a special telephone ordering system. And since you can't buy what you can't afford, you'll need to know how much you can spend before you pick up the phone.

The calculator opens a stylish wallet along with your Codeholder card. On this card you will keep your personal number - the one you must quote when ordering items from the exclusive catalogue you will also receive upon joining the scheme.

The catalogue contains a wide range of specially selected goods, including electronics, games, cameras and even a portable TV.

Of course, you don't have to leave your catalogue if you don't want to leave your savings in your account and they will secure your interest. And we won't deduct fees for the interest payments - unless the building societies.

As an ON LINE owner you will regularly receive a special magazine containing features on money, careers and fashion.

You don't need a calculator to tell you that all of this adds up to a pretty impressive package.

To open a NatWest ON LINE account you need £5 of which £3 covers membership.

Deposits your local NatWest branch today, and go.

NatWest
The Action Bank

© NatWest Bank plc 1985. All rights reserved. No part of this publication may be reproduced without permission.

ON LINE is a registered trademark of NatWest Bank plc. The ON LINE logo is a registered trademark of NatWest Bank plc. The ON LINE logo is a registered trademark of NatWest Bank plc. The ON LINE logo is a registered trademark of NatWest Bank plc.



KOSMIC KANGA



Toshiba/Amstrad

Perky

Imagicon/Fox



48K Spectrum



16K/32K Spectrum



48K Spectrum

KOSMIC KANGA, a multi-screen, amazing, arcade standard original action game. Featuring superbly animated graphics and packed full of arcade features. Help **KANGA** find his space ship so he can return home to his planet. Leap about buildings, trees, clouds etc., pick up bonuses and throw boxing gloves at the enemies.

Keyboard or most joysticks. **48K SPECTRUM** for most other Computers soon.

ONLY £5.95 EACH

Available from most good software retailers. If your local software retailer is out of stock, send cheque/P.O. to Micromania, 14 Lower Hill Rd., Epsom, Surrey, KT19 8LT, and we will send your order by first class post free.

MICROMANIA

DEALERS: PHONE MICRODEALER UK 0727 34951 OR MICROMANIA 0727272007

**SPECIAL DISCOUNT
TO CLUBS**
Group Rates Available

**Settle down
to trouble free
Computing with M.D.R.[®]**

**Announcing the birth of the personal information centre . . .
 . . . a new concept in intelligent sourcing of computer suitability
 to your needs, consultancy, purchasing, maintenance and repair**

[illegible]

WE SUPPLY
90% of all hardware
90% of all products
all at discounted prices
from \$1000 down

Costs with order. No need to
pay for purchasing. But it's
always better to look before you
buy.



- **SANDWICH 360** +
Sausages, Mashedmeat, Cheese,
Onions 1.440 = net 390
- **SPICEDIN POU** + Wondra,
Pineapple Candies, Schedules
Pineapple CALC 390
- **CCCHERRYPIE 64**
1.140 = net 390
- **BISC B** 1.140 = net 390
- **ACCTA FRUIT 175046** 2.310 E
DID + BORN C1 580 = net 390
- **PLUTONIC PROXIDON**
Spicedmeat 1.540.75 = net 390
- **CRAB, HOT-ROCK** 1.140 = net 390
- **SIMPALAB SPICEDIN** 1.140,
1.280 = net 390
- **ATAIR 6000L** 1.140 = net 390

DELIVERY CHARGE
DELIVERY CHARGE PER UNIT

100

All products are in stock, your name and address are the responsibility including your postage! © 1998. Funds payable to: MICH Ltd and your will be forwarded only by cheque to: MICH Ltd. Please allow 7 days for receipt of postage. All contents of your order are insured. Please email: mich@compuserve.com

© 2008 by The McGraw-Hill Companies, Inc. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage or retrieval system, without prior written permission from The McGraw-Hill Companies, Inc.

© 2000 Blackwell Science Ltd *Journal of Internal Medicine* 247: 391–397

© 2004 by The McGraw-Hill Companies, Inc. All rights reserved. Printed in the United States of America. This book is printed on acid-free paper.

- | | |
|---|--|
| <input type="checkbox"/> Think of MDR ₃ like the A/A if you like | <input type="checkbox"/> Membership open to business and home users! |
| <input type="checkbox"/> Up to 20% discounts on purchasing! | <input type="checkbox"/> 24-hour emergency service! |
| <input type="checkbox"/> Star Bargains! | <input type="checkbox"/> 48-hour replacement machine service! |

IMMEDIATE COVER - All for £10.00 membership fee! ... remember, if we can't help you, a full refund will be given! Join now, and settle down to Trouble Free Computing.



mdr limited
27 BELLEVILLE ROAD
LONDON SW11 6QS
TEL 001 223 1613

Printed in the U.S.A. by the U.S. Government Printing Office, Washington, D.C. 20540-4500.

1. *Journal of Management Studies*, 1996, 33, 1, 1-14.
 2. *Journal of Management Studies*, 1996, 33, 1, 15-31.
 3. *Journal of Management Studies*, 1996, 33, 1, 33-49.
 4. *Journal of Management Studies*, 1996, 33, 1, 51-67.
 5. *Journal of Management Studies*, 1996, 33, 1, 69-85.
 6. *Journal of Management Studies*, 1996, 33, 1, 87-103.
 7. *Journal of Management Studies*, 1996, 33, 1, 105-121.
 8. *Journal of Management Studies*, 1996, 33, 1, 123-139.
 9. *Journal of Management Studies*, 1996, 33, 1, 141-157.
 10. *Journal of Management Studies*, 1996, 33, 1, 159-175.
 11. *Journal of Management Studies*, 1996, 33, 1, 177-193.
 12. *Journal of Management Studies*, 1996, 33, 1, 195-211.
 13. *Journal of Management Studies*, 1996, 33, 1, 213-229.
 14. *Journal of Management Studies*, 1996, 33, 1, 231-247.
 15. *Journal of Management Studies*, 1996, 33, 1, 249-265.
 16. *Journal of Management Studies*, 1996, 33, 1, 267-283.
 17. *Journal of Management Studies*, 1996, 33, 1, 285-301.
 18. *Journal of Management Studies*, 1996, 33, 1, 303-319.
 19. *Journal of Management Studies*, 1996, 33, 1, 321-337.
 20. *Journal of Management Studies*, 1996, 33, 1, 339-355.
 21. *Journal of Management Studies*, 1996, 33, 1, 357-373.
 22. *Journal of Management Studies*, 1996, 33, 1, 375-391.
 23. *Journal of Management Studies*, 1996, 33, 1, 393-409.
 24. *Journal of Management Studies*, 1996, 33, 1, 411-427.
 25. *Journal of Management Studies*, 1996, 33, 1, 429-445.
 26. *Journal of Management Studies*, 1996, 33, 1, 447-463.
 27. *Journal of Management Studies*, 1996, 33, 1, 465-481.
 28. *Journal of Management Studies*, 1996, 33, 1, 483-499.
 29. *Journal of Management Studies*, 1996, 33, 1, 501-517.
 30. *Journal of Management Studies*, 1996, 33, 1, 519-535.
 31. *Journal of Management Studies*, 1996, 33, 1, 537-553.
 32. *Journal of Management Studies*, 1996, 33, 1, 555-571.
 33. *Journal of Management Studies*, 1996, 33, 1, 573-589.
 34. *Journal of Management Studies*, 1996, 33, 1, 591-607.
 35. *Journal of Management Studies*, 1996, 33, 1, 609-625.
 36. *Journal of Management Studies*, 1996, 33, 1, 627-643.
 37. *Journal of Management Studies*, 1996, 33, 1, 645-661.
 38. *Journal of Management Studies*, 1996, 33, 1, 663-679.
 39. *Journal of Management Studies*, 1996, 33, 1, 681-697.
 40. *Journal of Management Studies*, 1996, 33, 1, 699-715.
 41. *Journal of Management Studies*, 1996, 33, 1, 717-733.
 42. *Journal of Management Studies*, 1996, 33, 1, 735-751.
 43. *Journal of Management Studies*, 1996, 33, 1, 753-769.
 44. *Journal of Management Studies*, 1996, 33, 1, 771-787.
 45. *Journal of Management Studies*, 1996, 33, 1, 789-805.
 46. *Journal of Management Studies*, 1996, 33, 1, 807-823.
 47. *Journal of Management Studies*, 1996, 33, 1, 825-841.
 48. *Journal of Management Studies*, 1996, 33, 1, 843-859.
 49. *Journal of Management Studies*, 1996, 33, 1, 861-877.
 50. *Journal of Management Studies*, 1996, 33, 1, 879-895.
 51. *Journal of Management Studies*, 1996, 33, 1, 897-913.
 52. *Journal of Management Studies*, 1996, 33, 1, 915-931.
 53. *Journal of Management Studies*, 1996, 33, 1, 933-949.
 54. *Journal of Management Studies*, 1996, 33, 1, 951-967.
 55. *Journal of Management Studies*, 1996, 33, 1, 969-985.
 56. *Journal of Management Studies*, 1996, 33, 1, 987-1003.
 57. *Journal of Management Studies*, 1996, 33, 1, 1005-1021.
 58. *Journal of Management Studies*, 1996, 33, 1, 1023-1039.
 59. *Journal of Management Studies*, 1996, 33, 1, 1041-1057.
 60. *Journal of Management Studies*, 1996, 33, 1, 1059-1075.
 61. *Journal of Management Studies*, 1996, 33, 1, 1077-1093.
 62. *Journal of Management Studies*, 1996, 33, 1, 1095-1111.
 63. *Journal of Management Studies*, 1996, 33, 1, 1113-1129.
 64. *Journal of Management Studies*, 1996, 33, 1, 1131-1147.
 65. *Journal of Management Studies*, 1996, 33, 1, 1149-1165.
 66. *Journal of Management Studies*, 1996, 33, 1, 1167-1183.
 67. *Journal of Management Studies*, 1996, 33, 1, 1185-1201.
 68. *Journal of Management Studies*, 1996, 33, 1, 1203-1219.
 69. *Journal of Management Studies*, 1996, 33, 1, 1221-1237.
 70. *Journal of Management Studies*, 1996, 33, 1, 1239-1255.
 71. *Journal of Management Studies*, 1996, 33, 1, 1257-1273.
 72. *Journal of Management Studies*, 1996, 33, 1, 1275-1291.
 73. *Journal of Management Studies*, 1996, 33, 1, 1293-1309.
 74. *Journal of Management Studies*, 1996, 33, 1, 1311-1327.
 75. *Journal of Management Studies*, 1996, 33, 1, 1329-1345.
 76. *Journal of Management Studies*, 1996, 33, 1, 1347-1363.
 77. *Journal of Management Studies*, 1996, 33, 1, 1365-1381.
 78. *Journal of Management Studies*, 1996, 33, 1, 1383-1399.
 79. *Journal of Management Studies*, 1996, 33, 1, 1401-1417.
 80. *Journal of Management Studies*, 1996, 33, 1, 1419-1435.
 81. *Journal of Management Studies*, 1996, 33, 1, 1437-1453.
 82. *Journal of Management Studies*, 1996, 33, 1, 1455-1471.
 83. *Journal of Management Studies*, 1996, 33, 1, 1473-1489.
 84. *Journal of Management Studies*, 1996, 33, 1, 1491-1507.
 85. *Journal of Management Studies*, 1996, 33, 1, 1509-1525.
 86. *Journal of Management Studies*, 1996, 33, 1, 1527-1543.
 87. *Journal of Management Studies*, 1996, 33, 1, 1545-1561.
 88. *Journal of Management Studies*, 1996, 33, 1, 1563-1579.
 89. *Journal of Management Studies*, 1996, 33, 1, 1581-1597.
 90. *Journal of Management Studies*, 1996, 33, 1, 1599-1615.
 91. *Journal of Management Studies*, 1996, 33, 1, 1617-1633.
 92. *Journal of Management Studies*, 1996, 33, 1, 1635-1651.
 93. *Journal of Management Studies*, 1996, 33, 1, 1653-1669.
 94. *Journal of Management Studies*, 1996, 33, 1, 1671-1687.
 95. *Journal of Management Studies*, 1996, 33, 1, 1689-1705.
 96. *Journal of Management Studies*, 1996, 33, 1, 1707-1723.
 97. *Journal of Management Studies*, 1996, 33, 1, 1725-1741.
 98. *Journal of Management Studies*, 1996, 33, 1, 1743-1759.
 99. *Journal of Management Studies*, 1996, 33, 1, 1761-1777.
 100. *Journal of Management Studies*, 1996, 33, 1, 1779-1795.
 101. *Journal of Management Studies*, 1996, 3

I understand that it will automatically be eligible for 401(k) services, and may roll 7 days from day of posting and receive the service I require.

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

TABLE 1

THE JOURNAL

1000

111

09-06-2017

1000-0000/01/0000-0000\$10.00/0

[illegible]

☐ **Check for updates**

CONSULTANTS, SUPPLIERS AND ENGINEERS TO HOME AND BUSINESS (TANJUNG PEARL)

[illegible][illegible]

```

8 THE HIGH
500 PRINT "*****PRESS THE SPACEBAR
OF THE PIPE"
510 PRINT "*****BUTTON AGAIN"
520 PRINT "*****PRESS SPACE
BAR"
530 GET A$ IF A$="" THEN 510
540 IF A$=" " THEN 510
550 GOTO 510
560 PRINT "*****NOW YOU HAVE COMPLET
ED YOUR SPEECH"
570 PRINT "*****JUST PRESS THE F1 KEY T
O RETURN TO"
580 PRINT "*****THE MENU, THEN YOU CAN E
, THEN HAVE YOUR"
590 PRINT "*****WRITE, DISPLAY YOUR SPE
ECH, READ YOUR"
600 PRINT "*****BOTH AND ALSO VO
U CAN RECALL A"
610 PRINT "*****WRITE PREVIOUSLY SAVED
ON TAPE."
620 PRINT "*****PRESS SPACE-FO
R MENU"
630 GET A$ IF A$="" THEN 520
640 GET A$ IF A$="" THEN 520
650 IF A$=" " THEN 10
660 GOTO 520
670 PRINT "*****"
680 PRINT "*****"
690 PRINT "*****"
700 PRINT "*****"
710 PRINT "*****"
720 PRINT "*****"
730 PRINT "*****"
740 PRINT "*****"
750 PRINT "*****"
760 PRINT "*****"
770 PRINT "*****"
780 PRINT "*****"
790 PRINT "*****"
800 PRINT "*****"
810 PRINT "*****"
820 PRINT "*****"
830 PRINT "*****"
840 PRINT "*****"
850 PRINT "*****"
860 PRINT "*****"
870 PRINT "*****"
880 PRINT "*****"
890 PRINT "*****"
900 PRINT "*****"
910 PRINT "*****"
920 PRINT "*****"
930 PRINT "*****"
940 PRINT "*****"
950 PRINT "*****"
960 PRINT "*****"
970 PRINT "*****"
980 PRINT "*****"
990 PRINT "*****"

```

```

350 NEXT N
355 CLOSE 1
700 PRINT "*****YOU NOW H
AVE IN Menu"
710 PRINT "*****"
720 PRINT "*****PRESS F1
FOR MENU"
730 GET A$ IF A$="" THEN 700
740 IF A$=" " THEN 10
750 GOTO 710
760 IF A$=" " THEN 10
770 GOTO 710
780 GOTO 710
790 GOTO 710
800 GOTO 710
810 GOTO 710
820 GOTO 710
830 GOTO 710
840 GOTO 710
850 GOTO 710
860 GOTO 710
870 GOTO 710
880 GOTO 710
890 GOTO 710
900 GOTO 710
910 GOTO 710
920 GOTO 710
930 GOTO 710
940 GOTO 710
950 GOTO 710
960 GOTO 710
970 GOTO 710
980 GOTO 710
990 GOTO 710

```

```

00100 IF R0R12=0042721=100 THEN PO
00101   JZ 1000 GOTO 00105
00102   JZ 1000 JZ 1000
00103 IF R0R12=00117 THEN R0R12=001
00104   JZ 1000
00105 JZ 1000
00106 JZ 1000
00107 IF JZ 1000 JZ 1000 JZ 1000
00108 JZ 1000 JZ 1000
00109 JZ 1000 JZ 1000
00110 JZ 1000 JZ 1000
00111 JZ 1000 JZ 1000
00112 JZ 1000 JZ 1000
00113 JZ 1000 JZ 1000
00114 JZ 1000 JZ 1000
00115 JZ 1000 JZ 1000
00116 JZ 1000 JZ 1000
00117 JZ 1000 JZ 1000
00118 JZ 1000 JZ 1000
00119 JZ 1000 JZ 1000
00120 JZ 1000 JZ 1000
00121 JZ 1000 JZ 1000
00122 JZ 1000 JZ 1000
00123 JZ 1000 JZ 1000
00124 JZ 1000 JZ 1000
00125 JZ 1000 JZ 1000
00126 JZ 1000 JZ 1000
00127 JZ 1000 JZ 1000
00128 JZ 1000 JZ 1000
00129 JZ 1000 JZ 1000
00130 JZ 1000 JZ 1000
00131 JZ 1000 JZ 1000
00132 JZ 1000 JZ 1000
00133 JZ 1000 JZ 1000
00134 JZ 1000 JZ 1000
00135 JZ 1000 JZ 1000
00136 JZ 1000 JZ 1000
00137 JZ 1000 JZ 1000
00138 JZ 1000 JZ 1000
00139 JZ 1000 JZ 1000
00140 JZ 1000 JZ 1000
00141 JZ 1000 JZ 1000
00142 JZ 1000 JZ 1000
00143 JZ 1000 JZ 1000
00144 JZ 1000 JZ 1000
00145 JZ 1000 JZ 1000
00146 JZ 1000 JZ 1000
00147 JZ 1000 JZ 1000
00148 JZ 1000 JZ 1000
00149 JZ 1000 JZ 1000
00150 JZ 1000 JZ 1000
00151 JZ 1000 JZ 1000
00152 JZ 1000 JZ 1000
00153 JZ 1000 JZ 1000
00154 JZ 1000 JZ 1000
00155 JZ 1000 JZ 1000
00156 JZ 1000 JZ 1000
00157 JZ 1000 JZ 1000
00158 JZ 1000 JZ 1000
00159 JZ 1000 JZ 1000
00160 JZ 1000 JZ 1000
00161 JZ 1000 JZ 1000
00162 JZ 1000 JZ 1000
00163 JZ 1000 JZ 1000
00164 JZ 1000 JZ 1000
00165 JZ 1000 JZ 1000
00166 JZ 1000 JZ 1000
00167 JZ 1000 JZ 1000
00168 JZ 1000 JZ 1000
00169 JZ 1000 JZ 1000
00170 JZ 1000 JZ 1000
00171 JZ 1000 JZ 1000
00172 JZ 1000 JZ 1000
00173 JZ 1000 JZ 1000
00174 JZ 1000 JZ 1000
00175 JZ 1000 JZ 1000
00176 JZ 1000 JZ 1000
00177 JZ 1000 JZ 1000
00178 JZ 1000 JZ 1000
00179 JZ 1000 JZ 1000
00180 JZ 1000 JZ 1000
00181 JZ 1000 JZ 1000
00182 JZ 1000 JZ 1000
00183 JZ 1000 JZ 1000
00184 JZ 1000 JZ 1000
00185 JZ 1000 JZ 1000
00186 JZ 1000 JZ 1000
00187 JZ 1000 JZ 1000
00188 JZ 1000 JZ 1000
00189 JZ 1000 JZ 1000
00190 JZ 1000 JZ 1000
00191 JZ 1000 JZ 1000
00192 JZ 1000 JZ 1000
00193 JZ 1000 JZ 1000
00194 JZ 1000 JZ 1000
00195 JZ 1000 JZ 1000
00196 JZ 1000 JZ 1000
00197 JZ 1000 JZ 1000
00198 JZ 1000 JZ 1000
00199 JZ 1000 JZ 1000
00200 JZ 1000 JZ 1000

```

[illegible]

ANIROG

House Of
Usher

ICE
HUNTER

**3 NEW
TURBO 64
GAMES
£6.95
EACH**

PETCH

House of Usher

Does your enter the House of Usher. Behind each locked door of the nine room mansion a different style of arcade action awaits you.

Petch

The wander penguin is trapped in a dangerous world for diamonds hidden in a maze of ice cubes, harassed and chased by the evil enemies (snowed and snowed). The chances of survival are slim. Six levels of skill with two player options.

Ice Hunter

The hunter needs special ice blocks to build an igloo unaffected by the snow sun. He has found the source of the blocks in a small local town, but can he win the game inhabitants — the dragons — sea lions and vicious birds and float the blocks down the river to construct his dream home. Six levels and two player options.

Also available on Disk at £9.95

TRADE ENQUIRIES: ANIROG SOFTWARE LTD 29 WEST HILL, DARTFORD KENT (0323) 92513/9
MAIL ORDER: 8 HIGH STREET, HORLEY, SURREY 24 HOUR CREDIT CARD SALES: HORLEY (03304) 6003
PAYMENT BY CHEQUE P.O. ACCESS/VISA 50p POSTAGE & PACKAGING £2.00 OVERSEAS

[illegible]

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

Available police files in this matter suggest that the claim to find it. All that that is your — you for — James Edwards — would there at all cost — that cost. I'd would think twice about



by S. P. McNish for SPECTRUM

```

100 PRINT AT 1.5, 200, 0, "WARP"
110 GOTO 140
120 PLOT 10, 11
130 GOTO 140
140 GOTO 140
150 GOTO 140
160 GOTO 140
170 GOTO 140
180 PRINT AT 1.5, 200, 0, "WARP"
190 GOTO 140
200 GOTO 140
210 GOTO 140
220 GOTO 140
230 GOTO 140
240 GOTO 140
250 GOTO 140
260 GOTO 140
270 GOTO 140
280 GOTO 140
290 GOTO 140
300 GOTO 140
310 GOTO 140
320 GOTO 140
330 GOTO 140
340 GOTO 140
350 GOTO 140
360 GOTO 140
370 GOTO 140
380 GOTO 140
390 GOTO 140
400 GOTO 140
410 GOTO 140
420 GOTO 140
430 GOTO 140
440 GOTO 140
450 GOTO 140
460 GOTO 140
470 GOTO 140
480 GOTO 140
490 GOTO 140
500 GOTO 140
510 GOTO 140
520 GOTO 140
530 GOTO 140
540 GOTO 140
550 GOTO 140
560 GOTO 140
570 GOTO 140
580 GOTO 140
590 GOTO 140
600 GOTO 140
610 GOTO 140
620 GOTO 140
630 GOTO 140
640 GOTO 140
650 GOTO 140
660 GOTO 140
670 GOTO 140
680 GOTO 140
690 GOTO 140
700 GOTO 140
710 GOTO 140
720 GOTO 140
730 GOTO 140
740 GOTO 140
750 GOTO 140
760 GOTO 140
770 GOTO 140
780 GOTO 140
790 GOTO 140
800 GOTO 140
810 GOTO 140
820 GOTO 140
830 GOTO 140
840 GOTO 140
850 GOTO 140
860 GOTO 140
870 GOTO 140
880 GOTO 140
890 GOTO 140
900 GOTO 140
910 GOTO 140
920 GOTO 140
930 GOTO 140
940 GOTO 140
950 GOTO 140
960 GOTO 140
970 GOTO 140
980 GOTO 140
990 GOTO 140

```

```

1000 PRINT AT 1.5, 200, 0, "WARP"
1010 GOTO 140
1020 PLOT 10, 11
1030 GOTO 140
1040 GOTO 140
1050 GOTO 140
1060 GOTO 140
1070 GOTO 140
1080 PRINT AT 1.5, 200, 0, "WARP"
1090 GOTO 140
1100 GOTO 140
1110 GOTO 140
1120 GOTO 140
1130 GOTO 140
1140 GOTO 140
1150 GOTO 140
1160 GOTO 140
1170 GOTO 140
1180 GOTO 140
1190 GOTO 140
1200 GOTO 140
1210 GOTO 140
1220 GOTO 140
1230 GOTO 140
1240 GOTO 140
1250 GOTO 140
1260 GOTO 140
1270 GOTO 140
1280 GOTO 140
1290 GOTO 140
1300 GOTO 140
1310 GOTO 140
1320 GOTO 140
1330 GOTO 140
1340 GOTO 140
1350 GOTO 140
1360 GOTO 140
1370 GOTO 140
1380 GOTO 140
1390 GOTO 140
1400 GOTO 140
1410 GOTO 140
1420 GOTO 140
1430 GOTO 140
1440 GOTO 140
1450 GOTO 140
1460 GOTO 140
1470 GOTO 140
1480 GOTO 140
1490 GOTO 140
1500 GOTO 140
1510 GOTO 140
1520 GOTO 140
1530 GOTO 140
1540 GOTO 140
1550 GOTO 140
1560 GOTO 140
1570 GOTO 140
1580 GOTO 140
1590 GOTO 140
1600 GOTO 140
1610 GOTO 140
1620 GOTO 140
1630 GOTO 140
1640 GOTO 140
1650 GOTO 140
1660 GOTO 140
1670 GOTO 140
1680 GOTO 140
1690 GOTO 140
1700 GOTO 140
1710 GOTO 140
1720 GOTO 140
1730 GOTO 140
1740 GOTO 140
1750 GOTO 140
1760 GOTO 140
1770 GOTO 140
1780 GOTO 140
1790 GOTO 140
1800 GOTO 140
1810 GOTO 140
1820 GOTO 140
1830 GOTO 140
1840 GOTO 140
1850 GOTO 140
1860 GOTO 140
1870 GOTO 140
1880 GOTO 140
1890 GOTO 140
1900 GOTO 140
1910 GOTO 140
1920 GOTO 140
1930 GOTO 140
1940 GOTO 140
1950 GOTO 140
1960 GOTO 140
1970 GOTO 140
1980 GOTO 140
1990 GOTO 140

```

A NEW DIMENSION IN FAMILY ENTERTAINMENT



NOW AVAILABLE
For SPECTRUM, C64, II

COMING SOON
Versions for BBC, Electron, Amstrad, Oric & others

April 14th 1912. On her maiden voyage the Titanic hit an iceberg and sank taking with her a vast fortune in gold.

Your mission is to raise sufficient finance and equip an expedition to find the Titanic and it's lost gold.

Easy! Well it could be but with 400 possible locations for the gold you

need to watch your dollars - or supply.

You begin your search when suddenly we'll that would be talking wouldn't it?

Come with **Cumby Micro Speech** (Spectrum version only).

Number one in our new range of games designed for family enjoyment.

Fantastic value for money

R.R.P. £12.95 inc. V.A.T.

WARNING: Contact your nearest distributor to enquire about.

R&R

SOFTWARE

PROGRAMMING: David Cox. Program quality guaranteed for 12 months. R.R.P.

R&R Software Ltd. 5 Russell Street Gloucester GL1 1NE
Tel (0432) 802819



Some months ago, the appearance of *The Quill* adventures-writing tool threatened to revolutionize this space's skill. The first "official" batch of Quill-generated prose has just arrived — the Quill Gold collection. Our Man Keaton gives them the twice-over.

IT WASN'T A degree, the promise that I finally attended school. I'd tried and my pen was rusty and my eyes outnumbered but all to no avail. *The Gold* collection remained intact. An arrogant pair of upstanding phantas. Quill? I wanted a glimpse of Germanic fantasy would dreamt upon Gifford's *Grimm's* H.Q.

I'd fully intended to be through the first album (a collection of Quill adventures, comprising both prose and pictures) in all its grand moments, but I was not able. Your basic adventure (it was the only beauty) was now topped down in more of mystery. Indeed, was a terrible I went down making.

The Quill is clearly the single most useful utility currently available for the potential Spectrum games designer (at least with both Scope 2 and The Sharp-End). Consider: writing a novel-length story could be as easy as the most straightforwardly it's ever would-be authors from the region of those

and their programming and delivered into them a reasonable writing tool. Its creative potential is enormous. The QGM 84 version, to be available shortly, is even more exciting as it offers greater use of colour and sound as well as some much needed access to the interpreter (what I wouldn't do to dump that "Have a nice day" tag line! Interestingly while the entire collection has been compiled as *The Quill*, many look alike. They're all collectively entitled. All run on the 486, Spectrum.

The Adventures Of Sarah the Dwarf is probably the least interesting of the bunch. Assuming the role of a quiet sword-wielding dwarf (no great stretch of the imagination needed there, eh Keaton?) you must attempt to recover some fabled treasure of the underworld. Original indeed! The treatment is generally lachrymose and the game-play dull. Even worse there's the damned characterisation routine to contend with. You can barely open

a door before being invaded by some dandy. I'm awful boring. I made a message. Finally, find some rain for the 17th hour and you unconsciously kick the rain. This must come across as detailed in the Quill manual which can only indicate an immense lack of imagination on the part of the authors. It looks ill for the rest of the game.

Dwarf's Island also appears to exist barely from the Quill manual. Indeed the first location almost disappears the old city's built in example! However, there's a large green as it quickly becomes, always that rather Colin Smith has relied on imagination and device adventures have. You begin in a small, semi-dim dark setting the legendary pearl colony and must guard break and must be for freedom through the treacherous tropical rainforest. Really scripted with some humourous words and phrases, the game is a major head ache. It appears to be the toughest adventure in the collection.

Woodlander is another not so well built. It appears having been walled through a telephone wire

FIRST REPORT



So a nondescript British man (spoiler!) you've casually encountered in a underground prison, then plus, capture of a disaster punch (steal an world domination). Struck with humor and live and die death (survive) and thoughtful music. Mind-bender is quite a task. For example, those that dare only be help are charged with a term. What do you think that is? The black? message. Expect more to come. I'm a developer.

Older Gold

An older program now repackaged in the distinctive Gold library is *Magical Castle*. The title of course presents a little bit of a challenge to the player. You find up expecting the usual powers of magic, some dragons, and some and some but (most) just only exploding bottles, grossly copied and somewhat outdated. It's hardly a serious after. There's a certain amount of subtle death involved and not one but two exploding means (unintentional) and (unintentional) sure your position (unintentional). Something of a dark horse, I say.

Another older release is *Diamond Trail* in which you hunt down the missing. No, it's not a game. Like *Castle* it's a little

quirky and only really distinguished by a particular of a certain nature. All in all, it's really easy and unremarkable.

After Garden on the other hand is something of a gem. It's a game that's been around for a long time, but it's never been covered any work and prepare yourself for an excellent old dark horse mystery. Full of evoking doors and rickety old houses. Beautifully written and (partly) colored it's the my mind the best game in the collection. Instead it looks set to be the of the year, which is no mean feat considering the competition. Author Tom Davis has even used the Gold to build up some quite respectable graphics. Yes, it can be done later. Trapped inside an old dark horse you must solve the mystery of the missing guests before passing their forgotten ranks. While creeping through slowly about the ground floor I fully expected to bump into a deranged Norman Knight.

and his flock of screaming skeletons? I don't think what would happen were I light the candle.

Spectator is another remarkable effort. This time the adventure system has been used to create all things, a light candle set in it you become a player of a long range of events in a game. It's a game of gathering information and solving the puzzle. It's a game of about 1000 levels. On hand there's a lot of equipment to help including some radar, camera and something called a "magnifying glass". Thankfully there's an accompanying book detailing the use of the game. You can get a map although that's a bit of a joke — I spent the majority of my time staring at the map. It's a game of a long range of events in a game.

It's all incredibly interesting and rather puzzling. What I guess is the idea. And no game Gold is a valuable collection of pure text adventures which I no doubt are the pulling out (most) hours for many months to come.

Games
BARBARIC THE DRAGON (M)
DEVIL'S ISLAND (M)
MONSTERMAN (M)
MAGIC CASTLE (M)
DIAMOND TRAIL (M)
AFRICA (M)
SPYGLASS (M)
 Publisher: GIG
 Publisher: GIG
 Price: £1.95



WHAT DO YOU THINK?

FINALLY, if you have any favorite adventures, why not write in and tell us what they are, and why you like them. Perhaps you've contacted some one who says you can share or maybe you've just plain stuck your head in. Whatever the reason, write in. We're listening from you.

68000 ASSEMBLER

BERNARD TURNER Motorola blithely on with his series on programming the Wonder Chip mnemonic-style. Don't know what a 'mnemonic' is? Then JMP to another location...

TO COMMUNICATE with the silicon world, Intel/Intelcom (IC) chips are required by any computer. These are normally used as part of the keyboard, cassette, port-video display stuff, floppy disc and/or RS232C port hardware, depending on how the chips have been designed. In 68000-based machines these chips are "memory-mapped" and their internal registers are accessed as though they were just another part of the memory. This method is probably similar to those of you who use BASIC, COBOL or FORTRAN, but may be a little foreign to those among you who use Fortran, Pascal, C, C++ and "C" languages.

Instructions tell the MPU what to do and are held in numbers stored in memory. The 68000, not being a 8-bit processor, needs instructions from memory in two-byte (word) chunks. The instruction read determines the function performed as directed by the particular number. Numbers are not very easy to remember, so to us humans the instructions are given names to indicate their function; these are called "Mnemonic" Memory Instructions. It is these mnemonics that you type in when writing 68000 or any other assembly language program. If an assembler is able to read your typed-in code (source program), converting the mnemonic back into the corresponding numbers which they represent. When the assembly is complete the MPU can then directly process the assembled numbers. The assembled program is called the "Object program".

All 68000 instructions are in a fixed number of bytes in length. Similarly, all 68000 instructions must be placed on an even byte boundary, that is, always on an address that is not NOT divisible with the address NC00100. If the

instruction falls on an odd memory address then an Address Exception will occur. Not only are instructions and IC chips part of the memory but so too are data. For example, a similar high-level language that you write or have downloaded yourself with which you store your data is physically placed, or how to store it. When programming in an assembly language this is a new part of your jurisdiction. Data cannot be in memory as held only as numbers. It is how you look at and use data which determines how it appears to the person using your machine code program. Assembly of data is often termed "Addressing" — or providing different ways of data moving where the data is obtained from. The 68000 provides the following methods of addressing:

INSTRUCTION	NOTES
DATA REGISTER	
Direct	Da
Address register	
Direct	An
Address register	
Indirect	(An)
Address register	
Indirect with postincrement	(An)+
Address register	
Indirect with postdecrement	-(An)
Address register	
Indirect with displacement	d(An)
Address register	
Indirect with index and displacement	d(An,X)
Program Counter Relative	PC
Program Counter Relative with index	PC(X)
Absolute Immediate	Imm
Immediate	Imm

My friend, also known as "Immediate or Indirect", addressing or the corresponding high-level code makes the

the addressing mode that is used when using instructions such as "JMP" (Jump from Subroutine). Although the Program Counter is affected, it is not explicitly stated in the instruction as the addressing mode is used.

Generally speaking the format of a 68000 assembly language instruction is as three parts (there are exceptions). The mnemonic and its associated data type indicator constitute the first part, the memory register which function you require is 4. After the mnemonic and a full stop the data type indicator is placed. It is termed by a "W" "L" or "B" which tells you to act upon. The next part following the mnemonic and data type indicator are constants or constants and known as operands. The first operand of the instruction states where to obtain the data to act upon. This is called the "Source" operand. The second operand of the assembly language instruction states where the processed data will be placed, when the instruction has finished. It is known as the "Destination" operand.

The Size Indicator states the number of bits associated with the instruction data. "B" for byte (8-bit word), "W" for word (16-bit word), "L" for long word (32-bit word) and "S" indicates shift addressing when used with a shift instruction (LS, RS, etc). If the Size Indicator is omitted then the assembler should default to word size.

Operands, source and destination, can all use any of the appropriate addressing methods for "Immediate", "Address", "Index" and "Displacement", but you will find that there are some restrictions, depending on the instruction itself — such as having the use of any address field for only one of the operands. That is, you may have any address mode for source OR destination operand, but probably be forced to use a

register for the other operand. These restrictions will become clearer when the instructions themselves are discussed.

Okay, we now have an idea of obtaining and storing processed data, but what can we do with it? Firstly each instruction will fall into a particular group, those being control, arithmetic, shift and rotate, bit manipulation or logical functions. Secondly you'll find that if you are used to long statements in BASIC such as

```
LET D=(A+B)*(A-B)
```

then you can forget all about that! Simple is beautiful! The process will have to be broken up into small steps such as

```
LET C=A-B
LET D=A-B
LET D=C*D
```

We'll now attempt to describe this in 68000 code!

If the example helps to be associated with the parallel assembly code with "A" D0 with "B" D1 with "C" D2 with "D" then it may become clear. If all these variables don't make you clearer nothing will!

EXAMPLE

```
MOVW D0,D2  ;D0 to D2
MOVW D1,D2  ;D1 to D2
MOVW D2,D2  ;D2 to D2
MOVW D2,D2  ;D2 to D2
MOVW D2,D2  ;D2 to D2
MOVW D2,D2  ;D2 to D2
MOVW D2,D2  ;D2 to D2
MOVW D2,D2  ;D2 to D2
MOVW D2,D2  ;D2 to D2
MOVW D2,D2  ;D2 to D2
```

MOVW D2,D2 ;D2 to D2

Then source (left) operands four fields (area) on each line. Reading across from left to right we have a label field used to assign

values that the assembler and programmer use instead of actual addresses. This is so that the program is easily relocatable in different locations. Secondly we have the immediate field and the standard Data Size Operand. In the third field we find that we have two pieces of information for the instruction, namely the source and the destination operands. (This exception to the standard is being the JMP instruction.) Finally in the fourth field we have comments. Comments are not part of the finally-assembled object program. They are there like ASCII in BASIC, merely as an aid to the programmer.

Quickly skipping over the label begin, we encounter the instruction "MOVE". This instruction is one of the most used instructions, especially if you are interested in doing character graphics on a bit-mapped screen, say for example on the Sinclair QL. The MOVE instruction comes in several variations, the two concerning us here are termed by Motorola as "Move data from Source to Destination." What it does is to obtain data from the place represented by the source operand — as this case from the Data Register 1 (D1) — and place it where the Destination Operand dictates. In this example it is placed in Data Register 3 (D3). You should be careful when using the MOVE instruction, because it overwrites without thought whatsoever for what is contained in the Destination location. MOVE can also cause disaster if used when trying to read from I/O chips (e.g. video ACU) that clear their internal state when read. (The counterpart to this problem is that a similar instruction called MOVEW which we will discuss later.) The MOVE instructions do not affect the source operand at all, but it does affect the flags in the processor's condition code register. It always clears the Overflow and Carry flags, sets the Negative Flag to "1" if the result is negative; otherwise it clears it to zero; it sets the Zero Flag to "1" if the result is zero, else it directly sets the Flag to zero. The Destination Flag is unaffected. You may also like to note that the size of the data moved is word-sized, because of this it will not affect the least most significant bytes in either source or destination. Other data

permissible are Byte and Long Word. Parameters Address Modes are for

MODE	source	destination
Dn	yes	yes
AN	yes	no
(AN)	yes	no
(AN)+	yes	yes
-(AN)	yes	yes
o(AN)	yes	yes
o(AN)+	yes	yes
o(AN)-	yes	yes
o(AN)X	yes	yes
o(AN)X+	yes	yes
o(AN)X-	yes	yes
o(AN)X	yes	no
o(AN)X+	yes	no
o(AN)X-	yes	no

*Byte size not allowed

ADD, the MOVEW has two operands, source and destination. This instruction is most thought of as being inclusive in destination — that is, add in binary for sign the source to the destination and place the result in the destination. In this example the size operand is set to "word", thus only the lower two bytes of the registers D3 and D2 are used. Similar to the MOVEW instruction described above, the source operand is read only, and thus does not change. The Destination will contain the result of its previous contents and the contents of the Source Operand, summed together. Then if you set the size operand to "byte" and are familiar with the ADDC (Add with Carry) instruction, you will note that the Carry Flag is not added into the result when using the ADDC instructions. Thus the Carry Flag does not affect the result placed in the destination operand. After the ADD has been done the Condition Code Registers flags are set as follows, depending on the result:

FLAG SET CLEARED

- N Negative Flag set or positive
- Z Zero Flag zero
- V Overflow flag
- C Carry/Overflow occurred
- O Overflow occurred
- A Address can be contained in Destination
- X Carry Flag set

When using the ADD instruction, one of the operands MUST use a data register as one of the operands. If you are using that the Destination Operand then the Effective Address mode is applicable for the Source Operand (including why case register). If you don't use a data register as a Destination Operand, you MUST then use a Data Register as

the Source Operand. If then the data then only the following Effective Address Modes are allowable for the Destination Operand.

Modes Allowed when the Destination Operand isn't a Data Register

(AN)	(AN)+	(AN)-	(AN)X
(AN)X+	(AN)X-	(AN)X	o(AN)
o(AN)+	o(AN)-	o(AN)X	o(AN)X+
o(AN)X-	o(AN)X	o(AN)X+	o(AN)X-

The Second MOVEW is the same as the first MOVEW except the Data Register D4 and D5 are used.

The Subtraction instruction takes the Source from the Destination Operand, places the result in the Destination. Like the ADD instruction the carry out in binary arithmetic. The instructions use identical instructions to the ADD instruction, regarding the necessity to use a Data Register as one of its operands. Flag affect and are affected in an identical manner to the ADD instructions. In this example D2 is subtracted from D4. The result is placed in D4.

SHLL is the SHOWN instruction that requires the instruction to be a signed multiply of the Source Operand and a Data Register, which must be used as the Destination Operand. All Effective Address modes except AN are allowed for the Source Operand. The instruction takes both operands data as signed 16-bit numbers, producing a signed 32-bit result which is placed in the Destination Operand. In this example above the D4 register is multiplied with the D4 register. The result is placed in D4. No flag affect the operation of this instruction, but all of the flags in the Condition Code Register (except the X Flag) are affected by the result. The flags are affected in the following manner:

- N Set if the result is negative, cleared if the result is zero or greater than it is placed
- Z Set if the result is zero, if it's not zero then it is cleared
- V Always cleared in zero
- C Always cleared in zero

If have included a JMP instruction at the end of the program to stop the processor continuing further into memory, if it did so then it would try to execute op-

erated instructions that the memory address thus it acts as a "buffer" not allowing processing to fall through. The JMP instruction directs the processing from a position in memory to a position indicated by an operand, it is it jumps the processing to a new location. The assembler will substitute the value of a label as an instruction's operand. A label is given a value by typing the label's name in the label field in the assembly of JMP we have a label. Push on the operand. The JMP instruction requires an address to jump to, it is operand immediately before the instruction, in the label field. Push on the operand. This all comes from the value according to its location. Anywhere a "break" is used in the source program the assembler will substitute the value it has been allocated the assembler will therefore generate the address of the JMP instruction as the label's value. When the instruction is executed it will jump back to the start of the JMP instruction, and then execute the JMP again — creating an endless loop. If you run this program you will find that the only way to exit the machine is either to press the reset switch or power the power. The JMP instruction is not affected and has no effect on the Condition Code Register. Generally a preferable method of ending a program is to use an RTS, RTR or RTR instruction to return you to the loading program. We shall be looking at these in future articles.

RECAP

We have briefly looked at 80 Devices as part of the memory map. We saw that 8000 Instructions are formed from a 16-bit data size operand and the memory address of the instruction requires three. This Operand could be up to two in size — and that they are placed the Source and Destination. Following this it was pointed out that there were some instructions on parallel addressing modes for operands and that the source and destination were dependent on the particular instruction. The format of an assembly language source line was discussed and finally a small example was explained. Continuing the series we will look at address modes in our next article.

Tandy Learn And Save With The Tandy TRS-80 Colour Computer 2



28-7303



28-7308

**Pick Up One Of These Fast-Action
Games For Just £7.95**

Adventure 28-7304	£7.95	Progress 28-7304	£7.95
Castles In The Jungle 28-7303	£7.95	NEW! Castles In Space 28-7308	£7.95
Castles Over Walkabout 28-7302	£7.95	NEW! Danger Danger 28-7309	£7.95
Crazy Politics 28-7306	£7.95	NEW! Days of the Wizard 28-7310	£7.95
Castles Over Digging 28-7305	£7.95	NEW! Eight Ball 28-7311	£7.95
NEW! Pong 28-7307	£7.95	NEW! Ratslayer II 28-7312	£7.95

Take A Look At Tandy, Today!

Visit your local store or dealer and ask about our expanding range of microcomputer equipment and software - and remember, we service what we sell!

See Yellow Pages For The Address Of The Store Nearest You

TRS Standard
Colour Computer 2
SAVE £40
£119⁹⁵
inc. VAT
Reg. Price £159.95

TRS-80 Colour Computers Are Better Than Ever! We improved our most popular family of computers with a compact white case, low profile, electric typewriter-quality keyboard and prices that are less than last year's modelist.

Great For Entertainment, Household and Educational Use. Easily attach the Colour Computer to any TV - then Program PlotSM cartridges let you battle monsters in outer space, run a maze, play basketball - and lots more. But playing games is only the beginning. You can set up a budget or monitor your investments. Your kids can learn math or typing, enjoy history classes or make glorious computer "paintings".

Want to Learn to Program? Our entertaining instruction manuals will have you writing programs with colour displays and graphics in no time. Colour BASIC's sample commands let you quickly produce drawings, diagrams and charts. Choose from eight brilliant colours, create musical notes, solve problems, analyse data and much more. Then save your work on tape with an optional cassette recorder.

Respond Easily. Add a pair of joysticks, a printer, and a modem for telephone communications. Upgrade with more memory and up to four disk drives too.

16K Standard Colour Computer 2. The Standard Colour BASIC language includes data and string handling, dimensional arrays, math functions and 8-digit numeric accuracy. Includes entertaining 305-page beginner's manual.

28-3028 £169.95 Save £40.00 £129.95

16K Extended Colour Computer 2. All the features of Standard 2 BASIC, plus advanced programming capabilities to create high-resolution colour graphics using simple one-line commands. Includes a full manual on Standard and Extended BASIC.

28-3027 £199.95 Save £40.00 £159.95

Colour Computer Joysticks 28-3008 Price £9.95

Colour Computer Upgrade Kit, 64K BASIC Pk. 28-3417 £79.95

Extended BASIC Upgrade 28-3010 £59.95

SABRE WOLF

ULTIMATE
PLAY THE GAME

48K SINCLAIR ZX SPECTRUM
£9.95

Slow, Quick, Slow, Quick,

ZAP!

You don't have to be 13 years old with zits to be a whizz-kid. TERRY WATTS, K-TEL'S ace code-guider, is a withered 42, for example. AND a former Ballroom Dance champion. How unlikely a combination is that? NICKY XIKLUNA investigates...



Unintentionally, he had recruited all fifteen guitarists who preferred to fantasize about their impending stardom than practice their instruments.

All except Terry. (Had then he had that old M.E.)

"The only way we could get through a number was to split the lead into sections so that we could take turns in each doing a little bit." Meanwhile, the guy who was supposed to be playing lead, stayed.

The phony group finally found themselves a drummer. It was then that it dawned on them that none of them could keep time. They promptly (and wisely) disbanded.

Terry gives genuine "There are parallels between what was happening then, and where we are now in computing. For a while it seemed that the world of music could be anyone's oyster. Then the industry became increasingly professional, in computing, the importance of the programmer is dwindling as P.R., advertising, distribution, and business quickly vital. The competition and the standards are getting up all the time. Professionalism has become the most important thing in writing today."

So what is Terry up to professionally? "Oh, I'm a completely non-innovative programmer." Wait? As I can say at that it was 30K of machine code, and it's half way through it." The three-pronged shakedown chapter had suddenly gone quiet. Could this perhaps be Terry's subliminal threat? Could it be K-TEL's newly-stannated Rockhopper?

At that point he looked at me solemnly, and placed a hand over my ankle. I was not so sure.

TERRY WATTS, star K-TEL programmer, admits that he's not only a veteran of the Rock and Roll generation, but an uncontrollable music addict.

Terry's arrival is best equated with that of the first ball that suddenly raps across the screen in his game, City Attack. Swarthy, bright-eyed and unattracted, he has a wiry dancer's frame that has turned as wiry through many a tough in his other life as a dance teacher.

A Dance Teacher?
So how did the Space Shuttlestar get programming?

"A good knowledge of the music industry is a fascination with gadgetry. Computers seemed like a gadget par excellence. I just had to have a go. So I had one."

A few months later, Quik, still fresh themselves with Quikster Warrior, a VHS-20 bestseller.

CLASSICS

Terry wants to write classics—games that are totally charming even after time. "These games simply grow on your lips," explains the Terry. "You are compelled to keep playing out of sheer frustration, but you don't actually like them." Terry has written two very sophisticated games for K-TEL, Johnny and City Attack, which obviously prove his pudding. We asked him for the recipe.

"I don't start by trying to think original ideas. I play the others, watching for a 'hook.' A movement, perhaps, only lasting a few minutes—but one that you want to keep doing again and again. That's my trigger to a train of thought....and I'm off!"

Mistaken one also to be a source of inspiration. Should you get out whilst playing City Attack, observe the flickering tongues of flames that

signify your power unit. Beautiful, huh? Terry stumbled across this effect when he first got to terminals at lightning speed. It combined with another character, and the resulting sparks sparked off the "Bowie" trend. Terry, for he had discovered Fire.

Being a little older than the common games when he has no problems. Running a busy dance studio and a young family take up a lot of time. Terry's favorite programming language was introduced to him. (Nothing unusual there—Ed: His young son "he rounded" him to learn to code in order to avoid distractions. Whilst teaching a complex game, Terry was distracted by the boy. "Look, Daddy!" and Simon, brandishing an electrical plug and beaming with pride. The whole program vanished down the tube. Horrified, I asked Terry what he'd said about it.

"Potted him on the head," said Terry. "Hard."

But Terry also finds advantage in extra years. "I'm not so easily distracted as a 15-year-old. The young haven't tasted disappointment, and don't realize just how hard it is to succeed. You've got to be completely into what you're doing. The most important thing is never to give up." No doubt, music education helps.

ENGINEER

Terry had no formal education. He referred his career advice that he was going to be a television engineer. He was offered a chance to be a computer park attendant.

Our hero nevertheless managed to become a television engineer, but failed to find the glamorous life he'd fantasized. It was then he began to raminate on the idea of rock stardom.

WE'VE GOT THE TALENT-
and our games prove it!

© 2004 Blackwell Publishing Ltd *Journal of Internal Medicine* 255: 105–112

What are the professional competencies that are being emphasized by linguists, such as the ability to communicate in a second language or the ability to work with diverse populations?

SPOT YOURSELF A TALENT GAME TODAY. WE'LL COME ALONG. FACT!



1000

© 2004 Blackwell Publishing Ltd, *Journal of Internal Medicine* 255: 105–112

00000-00000-00000-00000

© 2000 by The McGraw-Hill Companies, Inc. All rights reserved. This publication is protected by copyright. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage or retrieval system, without prior written permission from The McGraw-Hill Companies, Inc.

[illegible][illegible]

1111

0
 1
 2
 3
 4
 5
 6
 7
 8
 9
 10
 11
 12
 13
 14
 15
 16
 17
 18
 19
 20
 21
 22
 23
 24
 25
 26
 27
 28
 29
 30
 31
 32
 33
 34
 35
 36
 37
 38
 39
 40
 41
 42
 43
 44
 45
 46
 47
 48
 49
 50
 51
 52
 53
 54
 55
 56
 57
 58
 59
 60
 61
 62
 63
 64
 65
 66
 67
 68
 69
 70
 71
 72
 73
 74
 75
 76
 77
 78
 79
 80
 81
 82
 83
 84
 85
 86
 87
 88
 89
 90
 91
 92
 93
 94
 95
 96
 97
 98
 99
 100
 101
 102
 103
 104
 105
 106
 107
 108
 109
 110
 111
 112
 113
 114
 115
 116
 117
 118
 119
 120
 121
 122
 123
 124
 125
 126
 127
 128
 129
 130
 131
 132
 133
 134
 135
 136
 137
 138
 139
 140
 141
 142
 143
 144
 145
 146
 147
 148
 149
 150
 151
 152
 153
 154
 155
 156
 157
 158
 159
 160
 161
 162
 163
 164
 165
 166
 167
 168
 169
 170
 171
 172
 173
 174
 175
 176
 177
 178
 179
 180
 181
 182
 183
 184
 185
 186
 187
 188
 189
 190
 191
 192
 193
 194
 195
 196
 197
 198
 199
 200
 201
 202
 203
 204
 205
 206
 207
 208
 209
 210
 211
 212
 213
 214
 215
 216
 217
 218
 219
 220
 221
 222
 223
 224
 225
 226
 227
 228
 229
 230
 231
 232
 233
 234
 235
 236
 237
 238
 239
 240
 241
 242
 243
 244
 245
 246
 247
 248
 249
 250
 251
 252
 253
 254
 255
 256
 257
 258
 259
 260
 261
 262
 263
 264
 265
 266
 267
 268
 269
 270
 271
 272
 273
 274
 275
 276
 277
 278
 279
 280
 281
 282
 283
 284
 285
 286
 287
 288
 289
 290
 291
 292
 293
 294
 295
 296
 297
 298
 299
 300
 301
 302
 303
 304
 305
 306
 307
 308
 309
 310
 311
 312
 313
 314
 315
 316
 317
 318
 319
 320
 321
 322
 323
 324
 325
 326
 327
 328
 329
 330
 331
 332
 333
 334
 335
 336
 337
 338
 339
 340
 341
 342
 343
 344
 345
 346
 347
 348
 349
 350
 351
 352
 353
 354
 355
 356
 357
 358
 359
 360
 361
 362
 363
 364
 365
 366
 367
 368
 369
 370
 371
 372
 373
 374
 375
 376
 377
 378
 379
 380
 381
 382
 383
 384
 385
 386
 387
 388
 389
 390
 391
 392
 393
 394
 395
 396
 397
 398
 399
 400
 401
 402
 403
 404
 405
 406
 407
 408
 409
 410
 411
 412
 413
 414
 415
 416
 417
 418
 419
 420
 421
 422
 423
 424
 425
 426
 427
 428
 429
 430
 431
 432
 433
 434
 435
 436
 437
 438
 439
 440
 441
 442
 443
 444
 445
 446
 447
 448
 449
 450
 451
 452
 453
 454
 455
 456
 457
 458
 459
 460
 461
 462
 463
 464
 465
 466
 467
 468
 469
 470
 471
 472
 473
 474
 475
 476
 477
 478
 479
 480
 481
 482
 483
 484
 485
 486
 487
 488
 489
 490
 491
 492
 493
 494
 495
 496
 497
 498
 499
 500
 501
 502
 503
 504
 505
 506
 507
 508
 509
 510
 511
 512
 513
 514
 515
 516
 517
 518
 519
 520
 521
 522
 523
 524
 5

Table 1

1. **Introduction**
 2. **Background**
 3. **Methodology**
 4. **Results**
 5. **Discussion**
 6. **Conclusion**
 7. **References**
 8. **Appendix**
 9. **Index**
 10. **Table of Contents**
 11. **Figure 1**
 12. **Figure 2**
 13. **Figure 3**
 14. **Figure 4**
 15. **Figure 5**
 16. **Figure 6**
 17. **Figure 7**
 18. **Figure 8**
 19. **Figure 9**
 20. **Figure 10**
 21. **Figure 11**
 22. **Figure 12**
 23. **Figure 13**
 24. **Figure 14**
 25. **Figure 15**
 26. **Figure 16**
 27. **Figure 17**
 28. **Figure 18**
 29. **Figure 19**
 30. **Figure 20**
 31. **Figure 21**
 32. **Figure 22**
 33. **Figure 23**
 34. **Figure 24**
 35. **Figure 25**
 36. **Figure 26**
 37. **Figure 27**
 38. **Figure 28**
 39. **Figure 29**
 40. **Figure 30**
 41. **Figure 31**
 42. **Figure 32**
 43. **Figure 33**
 44. **Figure 34**
 45. **Figure 35**
 46. **Figure 36**
 47. **Figure 37**
 48. **Figure 38**
 49. **Figure 39**
 50. **Figure 40**
 51. **Figure 41**
 52. **Figure 42**
 53. **Figure 43**
 54. **Figure 44**
 55. **Figure 45**
 56. **Figure 46**
 57. **Figure 47**
 58. **Figure 48**
 59. **Figure 49**
 60. **Figure 50**
 61. **Figure 51**
 62. **Figure 52**
 63. **Figure 53**
 64. **Figure 54**
 65. **Figure 55**
 66. **Figure 56**
 67. **Figure 57**
 68. **Figure 58**
 69. **Figure 59**
 70. **Figure 60**
 71. **Figure 61**
 72. **Figure 62**
 73. **Figure 63**
 74. **Figure 64**
 75. **Figure 65**
 76. **Figure 66**
 77. **Figure 67**
 78. **Figure 68**
 79. **Figure 69**
 80. **Figure 70**
 81. **Figure 71**
 82. **Figure 72**
 83. **Figure 73**
 84. **Figure 74**
 85. **Figure 75**
 86. **Figure 76**
 87. **Figure 77**
 88. **Figure 78**
 89. **Figure 79**
 90. **Figure 80**
 91. **Figure 81**
 92. **Figure 82**
 93. **Figure 83**
 94. **Figure 84**
 95. **Figure 85**
 96. **Figure 86**
 97. **Figure 87**
 98. **Figure 88**
 99. **Figure 89**
 100. **Figure 90**
 101. **Figure 91**
 102. **Figure 92**
 103. **Figure 93**
 104. **Figure 94**
 105. **Figure 95**
 106. **Figure 96**
 107. **Figure 97**
 108. **Figure 98**
 109. **Figure 99**
 110. **Figure 100**
 111. **Figure 101**
 112. **Figure 102**
 113. **Figure 103**
 114. **Figure 104**
 115. **Figure 105**
 116. **Figure 106**
 117. **Figure 107**
 118. **Figure 108**
 119. **Figure 109**
 120. **Figure 110**
 121. **Figure 111**
 122. **Figure 112**
 123. **Figure 113**
 124. **Figure 114**
 125. **Figure 115**
 126. **Figure 116**
 127. **Figure 117**
 128. **Figure 118**
 129. **Figure 119**
 130. **Figure 120**
 131. **Figure 121**
 132. **Figure 122**
 133. **Figure 123**
 134. **Figure 124**
 135. **Figure 125**
 136. **Figure 126**
 137. **Figure 127**
 138. **Figure 128**
 139. **Figure 129**
 140. **Figure 130**
 141. **Figure 131**
 142. **Figure 132**
 143. **Figure 133**
 144. **Figure 134**
 145. **Figure 135**
 146. **Figure 136**
 147. **Figure 137**
 148. **Figure 138**
 149. **Figure 139**
 150. **Figure 140**
 151. **Figure 141**
 152. **Figure 142**
 153. **Figure 143**
 154. **Figure 144**
 155. **Figure 145**
 156. **Figure 146**
 157. **Figure 147**
 158. **Figure 148**
 159. **Figure 149**
 160. **Figure 150**
 161. **Figure 151**
 162. **Figure 152**
 163. **Figure 153**
 164. **Figure 154**
 165. **Figure 155**
 166. **Figure 156**
 167. **Figure 157**
 168. **Figure 158**
 169. **Figure 159**
 170. **Figure 160**
 171. **Figure 161**
 172. **Figure 162**
 173. **Figure 163**
 174. **Figure 164**
 175. **Figure 165**
 176. **Figure 166**
 177. **Figure 167**
 178. **Figure 168**
 179. **Figure 169**
 180. **Figure 170**
 181. **Figure 171**
 182. **Figure 172**
 183. **Figure 173**
 184. **Figure 174**
 185. **Figure 175**
 186. **Figure 176**
 187. **Figure 177**
 188. **Figure 178**
 189. **Figure 179**
 190. **Figure 180**
 191. **Figure 181**
 192. **Figure 182**
 193. **Figure 183**
 194. **Figure 184**
 195. **Figure 185**
 196. **Figure 186**
 197. **Figure 187**
 198. **Figure 188**
 199. **Figure 189**
 200. **Figure 190**
 201. **Figure 191**
 202. **Figure 192**
 203. **Figure 193**
 204. **Figure 194**
 205. **Figure 195**
 206. **Figure 196**
 207. **Figure 197**
 208. **Figure 198**
 209. **Figure 199**
 210. **Figure 200**
 211. **Figure 201**
 212. **Figure 202**
 213. **Figure 203**
 214. **Figure 204**
 215. **Figure 205**
 216. **Figure 206**
 217. **Figure 207**
 218

© 2006 The Authors
Journal compilation © 2006 Blackwell Publishing Ltd

TALENT
COMPUTER SYSTEMS

© 2004 Blackwell Publishing Ltd, *Journal of Internal Medicine* 255: 105–112

Source: *Author's calculations* based on data from the *Survey of Consumer Finances* (1993, 2001, 2004, 2007).

* To transfer information properly, understand the source material, and provide the information in a clear, concise manner.

Figure 1


Country/Region	Year	Population (millions)	Population (millions)	Population (millions)
China	1990	1,190	1,190	1,190
India	1990	850	850	850
United States	1990	250	250	250
Japan	1990	125	125	125
Germany	1990	80	80	80
France	1990	60	60	60
United Kingdom	1990	55	55	55
Italy	1990	55	55	55
Spain	1990	40	40	40
Sweden	1990	8	8	8
Norway	1990	4	4	4
Denmark	1990	5	5	5
Finland	1990	5	5	5
Ireland	1990	0.5	0.5	0.5
Portugal	1990	10	10	10
Greece	1990	10	10	10
Turkey	1990	50	50	50
Poland	1990	35	35	35
Czech Republic	1990	12	12	12
Slovakia	1990	5	5	5
Hungary	1990	10	10	10
Romania	1990	22	22	22
Bulgaria	1990	8	8	8
Yugoslavia	1990	20	20	20
Croatia	1990	4	4	4
Slovenia	1990	1	1	1
Serbia	1990	7	7	7
Bosnia and Herzegovina	1990	4	4	4
Montenegro	1990	1	1	1
Albania	1990	4	4	4
Moldova	1990	4	4	4
Ukraine	1990	48	48	48
Belarus	1990	10	10	10
Lithuania	1990	3	3	3
Latvia	1990	1	1	1
Estonia	1990	1	1	1
Belgium	1990	10	10	10
Netherlands	1990	15	15	15
Austria	1990	8	8	8
Switzerland	1990	7	7	7
Luxembourg	1990	0.5	0.5	0.5
Iceland	1990	0.3	0.3	0.3
Malta	1990	0.4	0.4	0.4
Cyprus	1990	0.8	0.8	0.8
Gibraltar	1990	0.05	0.05	0.05
San Marino	1990	0.03	0.03	0.03
Vatican City	1990	0.01	0.01	0.01

Keywords: *workplace spirituality, spirituality, spirituality in the workplace, spirituality in the workplace, spirituality in the workplace*

[illegible]

[Home](#)
[About Us](#)
[Contact Us](#)
[Privacy Policy](#)

■ **How often will the delivery be made without fail?**

BOOST
BRAIN


Excellent machine though it is in every way, the Acorn BBC Model B is hampered by lack of on-board RAM memory (as anyone running the BBC BASIC would agree). There are times when every byte can be vital. In this article, KIM ALDIS explains how to add another 2K in the form of a 'RAM chip' — to fit in those handy sideways ROM sockets.

SO YOU'RE built your big 8 EPROM Programmer and probably tried it out. If your first experiences of EPROM blowing went anything like mine you probably had to waste the chip after the software ran: follow the chip, look the cat and start all over again when the chip still refused to work. After about a week or I fed to show was no cat and a wash out EPROM.

Before you throw the thing out of the window, there is an alternative. 2K RAM chips have become very similar to EPROMS, so they can be adapted to fit a sideways ROM socket, and they only cost about a few pence.

It doesn't sound very much but 2K means almost 65,000 words of memory. That's really enough sideways address and storage and suitable for an advantage of around thirty pounds over an

8K chip certainly makes it appealing.

Most of all the ingredients. You will need one 2K per DR socket and a Hitachi 61812P 2K static RAM chip. These are available from Technicom or Watford Electronics and should cost about a fiver all in.

A word of warning about the chip. This is what's known as a CMOS device which means it's very prone to static electricity. Your body is capable of storing static electricity in enough quantity to destroy the chip so cut yourself off and you're done. Remember to earth yourself for touching a metal bit of cold water pipe.

While on the subject of warnings the operators should be warned. Some parts of the board can be damaged by rough treatment and some parts are more than capable of damaging you if

the machine is left on. So BE CAREFUL! Turn off and unplug the computer before you open it up and treat it with respect. Realise the author for big 8 can accept any responsibility for damage done to either you or your computer by heeding and heeding it turned.

One slight problem is that there are four more pins on the EPROM than on the 2K chip so we need away of getting the right pins in the right holes. Jumping up and down on a dozen pins seems sensible so we'll cut down the DR socket and use that as an adaptor.

Take a look at the DR socket and you'll find the adaptor or 'bridge' is made of soldering required but this should be no great problem as long as you don't do a job the wrong way. Most solder paste should be used.

First of all use a size 12 pin



of side cutters to cut pins 16 and 23 from the DR socket. Turn the socket over and insert the chip into the socket as shown. Make sure the notch is at the top and that the four fine holes of the socket are also at the top.

Insulated

Now comes the soldering. The first is a line from pin 16 right hand pin of the chip to the top right pin of the socket. The next is a flying lead from pin 21 of the chip and should be secured as before long. Both these leads should be insulated single core which you should be able to get from the same place as the DR socket.

Now we can't test the chip which means opening up the computer. First of all TURN IT OFF! UNPLUG IT!

Look at the back and the underside of the computer. You should see four sockets

Figure 1 illustrates the 16-bit floating-point number format. The format is divided into three main fields: a 1-bit sign field, a 5-bit exponent field, and an 11-bit mantissa field. The mantissa field is further divided into a 1-bit integer part and a 10-bit fractional part. The diagram shows the internal structure of the mantissa, including the integer and fractional parts, and the sign field.

You can now insert the RAMM chip, already in its socket, into socket L2. This should go in the same way as the Basic chip, with the result of all the files.

addition to get 21 has to be soldered onto the 0020 VLSI chip. That's OK as shown in the diagram and is added onto pin 22 as shown. This has to be done over the main circuit board so the 0020 will fit.

PCMCIA work on their Ignition software, which is in three sections: card and bus drivers, BIOS, and PROCard and PRODevice, which you can use to read and write to the chip. To read from the chip at Ignition address 0x0000, use PROCardReadIndex() and use PRODeviceWriteAddress() to put the memory data into Ignition's buffers. Sample code is available if you want to learn a more complete use of the chip. To read more about the chip, visit the PCMCIA website at <http://www.pcmcia.org>. This magazine dumps the JTAG buffer at 0x0000, so JTAG is one page RAM, but don't forget that the chip must have a header code at the start. If you want a different file to the start, I've given you the code for an Amiga 1000.

Take a look at diagram 121. The 10,000 dollars are the flow in the bottom right quadrant.

[illegible]

OF HIGH JINKS AND ANTICS...

In the third part of the award-winning, spoof-making and score-busting series on ATARI GRAPHICS, NIGEL PAPERBURN explains how, by mere doctored twiddling with the display list, a bit of bits and bytes and jinx like effects become possible. Like redlined and multi-colored character sets, for example.

MANY of the colourful games that are available today on Atari do and actually use one high resolution graphics mode. They simply use a GRAPHICS 0 screen and colour. According to the Atari reference manual you can only have one colour with two intensities. However, there is an extremely simple way of obtaining four colours in a GRAPHICS 0 screen and also have a high resolution definition.

The Antic chip

The answer lies with the ANTIC chip. Although you only have twelve possible GRAPHICS commands, there are a possible sixteen different screens (assuming no interrupts and being programming). For those of you with one of the new XL computers like it made much simpler as they have been built into the GRAPHICS command.

One of the major functions of the Antic chip is to deliver what appears on your television screen. To do this it needs several pieces of information. Firstly it requires a set of instructions that tell it what mode it is in and secondly it needs to know where to find the screen data. The set of instructions for Antic contains a display list and the address of the display list is held in locations 540 and 541.

When you are in a GRAPHICS mode 0 screen Antic actually in mode 2. (Typical things are never as straight as

they should be.) Our next toyland, GRAPHICS mode 0 is Antic mode 4. Therefore all we have to do is to slightly alter the figures in the display list and having Antic that sit in mode 4.

The Display List

Firstly let us look at the ordinary display list. As I have already stated, its location is held in locations 540 and can be found by the following simple piece of arithmetic:

$$DL = \text{PEEK}(540) + \text{PEEK}(541) \times 256$$

Location 541 holds the 'high byte' of the address and 540 the low byte. We therefore have to multiply the high byte by 256 (as in our last month and pages being 256 bytes long) and add in the low byte. The variable DL now contains the starting address of the display list in order to see what the display list contains lives in the above and below it with.

$$\text{FOR } X = DL \text{ TO } DL + 31$$

PRINT PEEK(X); NEXT X

If you have typed it in correctly you will get a list of all numbers appearing on the screen.

The first three numbers should be 112 which tell Antic to put a line blank (not at the top of the screen). You should then have the number 68 followed by two other numbers depending upon how much memory you have got. Following this will be twenty three 2's. Finally another three numbers depending upon the state of your memory.

GRAPHICS mode 0 is ANTE mode 2 screen. One digit in the middle of this list we have a mass of 2's telling the Antic chip that mode 0 is on for that display line. We therefore have to change all the 2's into 4's.

If you look at the list of numbers again you will see this list fourth number is 68. This is actually mode 0 of 64+2. This

therefore has to be changed to 64+4 i.e. 68. If you now type in the following program it will convert the whole screen in Antic mode 4 and put something on the screen so that you can see the effect.

```
10 GRAPHICS 0: LIST
20 D = PEEK(540) +
    PEEK(541)*256
30 FOR DL=D:68
40 FOR X=D TO 25
50 PEEK(DL+X)=4
60 NEXT X
```

What appears on the screen is virtually illegible. You have got multi-coloured characters. Just to prove that it really is there after line 60 to read:

```
40 FOR X=D TO 68:PRINT 2
```

and then RUN the program again. Now only many other lines in it ANTE mode 4 and the characters are real mode 2 lines.

Continued p. 94



GRAPHICS 0: LIST



Meet Slurpy

Slurpy is a friendly, green, blob-like creature with a long, stretchy body. He is a member of the Slurp family, which is known for its ability to stretch its body into various shapes. Slurpy is a member of the Slurp family, which is known for its ability to stretch its body into various shapes.

Slurpy is a friendly, green, blob-like creature with a long, stretchy body. He is a member of the Slurp family, which is known for its ability to stretch its body into various shapes. Slurpy is a member of the Slurp family, which is known for its ability to stretch its body into various shapes.

Slurpy is a friendly, green, blob-like creature with a long, stretchy body. He is a member of the Slurp family, which is known for its ability to stretch its body into various shapes. Slurpy is a member of the Slurp family, which is known for its ability to stretch its body into various shapes.



FOR COMMODORE 64
E7-95

CREATIVE SPARKS



Get girls! Lose spots! U y

for Unexpanded VIC-20



SPEED ARENA

by
M. Gral



5 REMOSPEED ARENA
EV

BY M. GRAL

```
10 PRINT"C"
11 HI=100
15 SC=0 L=1 LI=0 GO TO 250
20 X=0 Y=0 DI=0 C=38720 RA="" B=""
30 POKE 36879,27
40 FOR F=7680 TO 7781 POKE F,160
   POKE F+C,8 NEXT F
50 FOR F=7680 TO 8164 STEP 22
   POKE F,160 POKE F+C,8 NEXT F
60 FOR F=8164 TO 8185 POKE F,160
   POKE F+C,8 NEXT F
70 FOR F=7781 TO 8185 STEP 22
   POKE F,160 POKE F+C,8 NEXT F
100 FOR W=1 TO 100
120 GET RA IF RA="R"AND RA<"Z"AND A
   B<"L"AND RA<" " THEN RA=B
```

```
110 IF RA="L" THEN W=W+1 DI=0 SC=SC+1
120 IF RA=" " THEN W=W+1 DI=0 SC=SC+1
130 IF RA="R" THEN W=W-1 DI=1 SC=SC+1
140 IF RA="Z" THEN W=W+1 DI=22 SC=SC+1
145 B=RA
150 P=7910+X+22*Y
160 IF PEEK(P)>032 THEN 300
170 POKE P,DI POKE P+C,2
180 FOR G=1 TO L
190 A=INT(RND*(1#5000))+1
200 POKE 7680+A,160 POKE 7680+A+C,8
210 NEXT G
220 FOR T=1 TO 25 NEXT T
230 POKE P,32
235 PRINT"## SCORE "SC" HI "HI
240 NEXT W
245 L=L+1
250 PRINT"ENTER ARENA" L
```



Up your Macho Moment!

Soar your buggy around the rapidly-materializing obstacles and win silver cups, champagne and the chance to go on *Nome That Tune* with Murray Walker! Got girls? Lose spots! Up your Macho Moment! All you need for perfect celestial harmony and clean spark plugs is to remember that A and S move you left and right, while L and I do the vertical equivalent. Remrrrummm!



```

360 FOR T=1 TO 500 NEXT T
370 PRINT"Q"
380 GOTO 20
390 POKE P,160 POKE P-1,160
    POKE P+1,160 POKE P-22,160
    POKE P+22,160
410 POKE P+C,4 POKE P-1+C,4
    POKE P+1+C,4 POKE P-22+C,4
    POKE P+22+C,4
435 POKE 36877,200
438 FOR S=15 TO 8 STEP-1 POKE 36878,S
    FOR T=1 TO 50 NEXT T NEXT S
439 POKE 36877,0
440 FOR E=0 TO 3 POKE P,32 POKE P-E,42
    POKE P+E,42 POKE P-22+E,42
    POKE P+22+E,42
458 POKE P+C,2 POKE P-E+C,2
    POKE P+E+C,2 POKE P-22+E+C,2
    POKE P+22+E+C,2
460 POKE 36878,10 POKE 36875,200
    FOR T=1 TO 25 NEXT T POKE 36875,0
470 POKE P,32 POKE P-E,32 POKE P+E,32
    POKE P-22+E,32 POKE P+22+E,32
480 NEXT E
485 LIM=L+1
490 IF LIM>0 THEN 250
490 PRINT"Q"
495 PRINT"YOU UNLOCKED ALL YOUR CARS."
510 PRINT"YOU SCORED"SC
520 IF SC=0 THEN PRINT"NEW HI SCORE"
    S" HI=SC GOTO 440
530 PRINT"HI SCORE"HI
540 PRINT"PRESS P TO PLAY"
550 GET Z: IF Z=0"P"THEN 450
560 PRINT"Q" GOTO 15

```





COMPETITION • COMPETITION • COMPETITION • COMPETITION

WIN

in our super

This month **BIG K**, in conjunction with **K-Tel**, is proud to present one of the most exciting competitions ever run by a computer magazine.

The lucky winner will receive (a) a week for two **Florida**—in Florida, USA; (b) all expenses including flight, hotel, car hire and **ASCO** **AWARD**—in **Florida**; and (c) a trip to the **Kennedy Space Center**. It's the trip of a lifetime and it's **ONLY** in **BIG K**.

Runners-up will receive prizes of **K-Tel Software** on either cassette or floppy-disk.

ENTER NOW
ON PAGE 100

ABOVE: THE SHUTTLE boosts into orbit from Cape Kennedy, Florida.
RIGHT: Inside the big bird. The winner won't get this far, but car hire is free!



COMPETITION • COMPETITION • COMPETITION • COMPETITION

7 A WEEK IN FLORIDA!

er Big K-TEL COMPETITION

RULES

There is no entry fee but all entries must be on a pre-printed coupon and must bear the return address and age of entrant.

Every accepted entry will be examined and the first Prize awarded to the entrant who is the opinion of the judges, has shown the most skill and judgment in assessing the merits of the alternative factors for each of the nine pairs. Payment prize will be awarded for the total total entries in order of merit. No entrant may win more than one award.

In the event of a tie or ties for any position then a further set of skill will be conducted by post between tying entrants. In determining the overall winners to winning order.

All prizes must be accepted by entrant. There can be no alternative awards, cash or otherwise if the Final Prize winner is aged under 18 then parental consent must be provided before the prize can be awarded. The entrant must be accompanied by a responsible adult on the holiday which includes any time during 1988, subject to availability of bookings.

Any entry received after the closing date will be disqualified and all relevant material, if applicable, altered, incomplete or not complying with the rules and instructions exactly. No responsibility can be accepted for entries lost or delayed in the post or otherwise. Proof of posting will not be accepted as proof of receipt.

The judges decide and that of the Editor in all other matters affecting the competition will be final and legally binding. No correspondence can be accepted.

The competition is open to all residents in Great Britain, Northern Ireland, Eire, the Channel Islands and Isle of Man, except employees and their families of the publishers or of K. Tel and their publishers agents.

All winners will be notified and the result published later in 1988.

COMPARE THESE FACTORS

- | | | | |
|------|------------------------------|-----|---|
| 1/ A | looking life page | 6. | attractive packaging |
| 2/ A | post graphics | 7. | original concept |
| 3/ A | keyboard layout option | 8. | choice of starting level/level |
| 4/ A | increasing difficulty scores | 9. | status before proving different game and play |
| 5/ A | high score table | 10. | long action option |
| 6/ A | smooth scrolling | 11. | continuous sound effects |
| 7/ A | practice level | 12. | on-screen instructions |
| 8/ A | machine code compiled basic | 13. | available for various machines |
| 9/ A | clear documentation | 14. | on-screen scoring |

HOW TO ENTER

Here are nine pairs of factors which are to be considered when ranking an arcade game suitable for home computers. Of course, a commercial success is the main aim and so all the factors are desirable. However, for the purpose of this competition what we want you to do is decide which of the two possibilities in each pair is more important when trying to design an appealing home computer arcade game — and A or B or are both EQUALLY important?

Write the key letter (A or B) of each chosen answer in the appropriate space on the entry coupon but if you consider them both to be of equal merit mark either (X). For example, if you think that looking table page is more important for the first pair put A under 1 on the coupon. If you think attractive packaging is of greatest importance put B but if you think they are of EQUAL merit put X.

When you have completed all nine pairs in this way complete the coupon — in ink or ballpoint — with your full name, age and address and then post your entry in a sealed envelope to: **190 K-TEL COMPETITION**, 55 EVELYN STREET, LONDON SE8 5EP to arrive no later than Friday, August 31, 1988, the closing date.

IMPORTANT Before sealing, copy out on the outside back of the envelope the nine key letters in EXACTLY the same order as they appear on your completed coupon. Do not enclose any other correspondence. **FAILURE TO COMPLY MAY RESULT IN YOUR ENTRY NOT BEING CONSIDERED.**

— THIS ENTRY COUPON —

1	2	3	4	5	6	7	8	9

NAME AGE

ADDRESS

.....

.....

.....

WONDER

WIDGETS

WICO, YOU CO, THEY ALL CO

You've been able to get the full range of peripherals this month for some time now, though not "officially." Those who have had any experience with home American computers know there is no real cut equal to the quality and abundance of games. Now they're home again in the UK, as is evidenced by the CO, who's already distributed the first UK computer plus the largest range of peripherals in the UK. Now now, you've got the Wico computer company's offer in this country.

Like all UK companies, Wico expect that Apple and IBM will most widely flourish with the current machines, and produce their own computers with a few more years' shouldn't consider themselves, but, you're very well. The first in the UK — this means you can get the machine you want for the first in the country. It means you can get the best of all of them, from the best of the best — every direction you want for the future. Those who want to get a machine designed, built, tested, and approved by the company represented by the Wico company in the UK. These companies have been supplied — since the first of the new computers in the UK. This is pretty much a computer's work, from that point you can significantly have that when they first arrived, and the experience that has

IBM Working for
Opening UK Computer Market

ENTER THE FUN GLOVE

Save the old hand price for input device. Glove not must be given — no computer — to CO. Glove, whose Super Action Hand Controller is exactly the most famous widget yet.

They resemble the boxing gloves of a robot game, and plastic, available in different colors. Your first. No top for the Glove game.



selective combinations, and the best of the best, with short cuts and shortcuts. Glove, which has the Glove game, is the Glove game. There is also a most interesting feature: the Glove game, which makes a move in the Glove game.

Underneath the Glove: two separate multi-colored triggers, one for each digit. Again, these have special applications.

Though both will go to the point of exactly to look at, these steps — like the most famous American engineering — actually work very well. The Glove is perfect and, in fact, almost Wico standard.

ELECTRON DIGITAL

Electron uses the 10000

that which they have a good 10000 in many ways. They also have a machine that is difficult to expand. Accor, presumably, is not all along the path, making it expand, and naturally go for the 10000, but that's not the way people think.

Then, the company, including, it must be said, Accor, have been quietly working on the not considerable task of making the Electron even more expandable. The

seems to be the point of a device system.

Electron, which runs on the Accor Electron, is a digital computer in the keyboard. The range of data-compatible sticks (in the last version) must be the last version, and you can get it — now.

ABC Systems of Galtby, from whom the Accor Electron have now produced a little computer, but of the same that lets Wico Pro-Gloves. Special, etc., all told to Electron. We guess of the point of the



*Each month a new slew of bizarre and beautiful
half-cats arrives at the Tower of Power. Here's a
selection — from the Neat 'n' Needful to the
Numbingly Naff.*

AQUARIUS SWIM IN SPECTRUM WATERS WITH NEW PLOTTER

When Magna's electronics division speeded into the festive last Christmas many folk assumed that was the end of both the mid-vision game system and the budget Aquarius computer.

But Aquarius lived! 16K RAM expansions and more software (including "small business" packages as well as the LOGO) emerged from yonder it back even as the lid of the tomb glassed, today, it doesn't nearly roll in horns, and probably never will, but the machine has now generated a series of fairly perceptive, all of which are Spectrum-compatible. The first of these to be revealed is the Aquarius 4-colour printer/plotter.

It's a tall and dark-blue slimline package about the size of a box of 50 cigars. It takes the usual 48-column roll of paper (any paper, 24 covered), prints text and screen graphics in four colours (all four colours, and generates its own remarkably complete character set. All of

this can be generated by either an Aquarius computer or — and this is much more of a prospect — Zenith Spectrums running in reverse!

Connection with the host Aquarius is via a miniature-pick serial cable. On power-up (which must be done before switching on the computer), the printer gears up with a whirrr or two, then raps out four lines on-line, each in a different colour. The pens, by the way, are inserted and removed with fantastic ease, and are about the size of 22 bullets. By holding down the PAPER FEED button while switching on the Aquarius can be made to generate its complete character set in either 40- or 80-column measure. The superb quality of the later, highly-magnified print is breathtaking for a machine of this price.

It operates in three modes: text

only; mixed text and graphics (with alternate character set), and graphics alone. Aerial can function in the normal way (albeit wasted) as a simple program loader (the LIST command), text reproducer (see LISTEN), or you can invoke a couple of protocols and connect it to a printer.

A printer — possibly after a disc drive — is next, people's choice of chief peripheral. Four-colour printer technology is more, in its upper reaches, a fine and expensive art; it was inevitable that before long someone would produce an example of the same technology to suit the "budget" end of the market. In the UK, this means Spectrums, and the fact that the Aquarius Printer/Plotter runs on Spectrum (yes on RS232C!) must make it a serious choice



DONGLE

Clear Port, as it were. Its price is £29.95.

Unhappily Acorn have also chosen this moment to unveil a range of 8-buson side-throughs for 124 68000 and 16-bit 68010. Given people don't get anywhere nearer up with Plus 1, all all popular expansion box.

All together in the end are a 4-megabyte power port two ROM slots, and a single analogue output port. The plus still have to use the Plus 1 to connect if you want to use decent clocks.



WONDER WIDGETS

CONTINUED
FROM
PAGE 81

THIS SLIMLINE IS A TONIC

Speedy conversion, never tire of pecking away these keyboards and who's to blame them? For the reason there has always been a substantial amount of interest in conversion keyboards of course.

Newest to enter gets the title: get Advanced Memory Systems, who offer a low profile full stroke conversion set for \$49.95. Among thoughtful appeals to the Sinclair layout are the provision of a one pin space bar and a dedicated numeric keypad. Word processing is number of respected packages that Spectrum actually exist is now a real possibility — which usually enhances the confidence of other Sinclair users like the drive and even endogenous.

Advanced Memory seems to have a knack of bringing certain small but rewarding areas of the market — you may remember them for a recent 3" Hi-Fi micro floppy drive they provided to fit Acorn's BBC D50.



NAFFWARE CORNER

We had to get this one in. If we had we would for the fourth widget of the month (is that one should?) this month's grand prize would have to go to makers of the great Alan 400 Stick as Plastic Keyboard.

Actually, it works. The convenient bit keyboard of the 400 400 (Alan's) again makes a yep in its first pretty machine, and the rubber keyboard when stuck in place actually reflects the main keypad, though you still use the fly touch type. And yes, Alan 400 may not want for it is huge console, previously having in history's dawn as their desire to get implemented.

What makes us want, though, here at Fig 8, is the aesthetic submissiveness of the thing. Rubber? Plastic,

space (Stick-and-Tasty) for the Alan 400. (Remember it not choices.) NO, our sense of humor clearly would simply not let us use this device for the purpose intended.

It is when it is regarded as an A400 widget that this splendid piece of console comes into its own. In add Prime Power to your motor, there's nothing like it. NO! An Editor (as Alan found it a home attached to the all-time dash of his Corvair). There, it serves as perfect financial solution, but Alan 400 is a powerwork and other computers, assuming it to be the ultimate key computer, off the wall machines. He is developing quite a good deal of power in the subject.

Can we all have one, please?



fantasy

SOFTWARE

Bob Hamilton's best selling Spectrum game has been beautifully converted for the Commodore 64 by John White with many additional features fully utilizing the extra capabilities of this machine. The Pyramid contains 120 chambers on 15 levels. In order to get from one chamber to another you must fight off the indigenous aliens to collect an energised crystal which will neutralize the force field guarding the two exits. The Pyramid is defended by a total of 120 different beautifully animated aliens (more than any other video game in history), one for every chamber and each with a unique attack pattern. They manifest themselves in the most amazingly diverse and peculiar forms from the squirting soda siphons to the extra-terrestrial tweezers and a whole host of entities defying rational description. You will have great fun inventing your own nicknames.

You proceed to explore the Pyramid from top to bottom with the difficulty increasing with the depth of level as the attack patterns get more complex and the alien's become intelligent.

Depending on the choice of exit from each chamber you are likely to have a different game every time you play.

Apart from the challenge of trying to achieve the highest score possible the Pyramid contains a number puzzle to solve. The more chambers you successfully visit the more information is gathered to enable you to unravel the secret numbers of the Pyramid.



THE PYRAMID is a true masterpiece of computer graphics and is a true representation of the on screen graphics. You have total control over his movements as you explore the many chambers of THE PYRAMID.

THE PYRAMID

For
Commodore
64
and 48K
Spectrum

FANTASY SOFTWARE is available from JOHN SMITHS, JOHN WENZIES, BOOTS, LASKYS, GREENS, RUMBLELOWS, SPECTRUM GROUP and all other good software retailers.

The Pyramid at £6.50 for Commodore 64K and at £5.50 for the Spectrum 48K from

FANTASY SOFTWARE: FAUCONBERG LODGE, 27A ST GEORGES ROAD, CHELTENHAM, GLOS GL50 3DT

despatched by return first class post together with free membership and current newsletter of the Fantasy Micro Club.

Trade enquiries welcome. Tel: 0452 631111 (M-F 10AM-4PM)

Year	Number of cases	Percentage of cases
1990	10	10.0
1991	15	15.0
1992	20	20.0
1993	25	25.0
1994	30	30.0
1995	35	35.0
1996	40	40.0
1997	45	45.0
1998	50	50.0
1999	55	55.0
2000	60	60.0
2001	65	65.0
2002	70	70.0
2003	75	75.0
2004	80	80.0
2005	85	85.0
2006	90	90.0
2007	95	95.0
2008	100	100.0
2009	105	105.0
2010	110	110.0
2011	115	115.0
2012	120	120.0
2013	125	125.0
2014	130	130.0
2015	135	135.0
2016	140	140.0
2017	145	145.0
2018	150	150.0
2019	155	155.0
2020	160	160.0
2021	165	165.0
2022	170	170.0
2023	175	175.0
2024	180	180.0
2025	185	185.0
2026	190	190.0
2027	195	195.0
2028	200	200.0
2029	205	205.0
2030	210	210.0
2031	215	215.0
2032	220	220.0
2033	225	225.0
2034	230	230.0
2035	235	235.0
2036	240	240.0
2037	245	245.0
2038	250	250.0
2039	255	255.0
2040	260	260.0
2041	265	265.0
2042	270	270.0
2043	275	275.0
2044	280	280.0
2045	285	285.0
2046	290	290.0
2047	295	295.0
2048	300	300.0
2049	305	305.0
2050	310	310.0
2051	315	315.0
2052	320	320.0
2053	325	325.0
2054	330	330.0
2055	335	335.0
2056	340	340.0
2057	345	345.0
2058	350	350.0
2059	355	355.0
2060	360	360.0
2061	365	365.0
2062	370	370.0
2063	375	375.0
2064	380	380.0
2065	385	385.0
2066	390	390.0
2067	395	395.0
2068	400	400.0
2069	405	405.0
2070	410	410.0
2071	415	415.0
2072	420	420.0
2073	425	425.0
2074	430	430.0
2075	435	435.0
2076	440	440.0
2077	445	445.0
2078	450	450.0
2079	455	455.0
2080	460	460.0
2081	465	465.0
2082	470	470.0
2083	475	475.0
2084	480	480.0
2085	485	485.0
2086	490	490.0
2087	495	495.0
2088	500	500.0
2089	505	505.0
2090	510	510.0
2091	515	515.0
2092	520	520.0
2093	525	525.0
2094	530	530.0
2095	535	535.0
2096	540	540.0
2097	545	545.0
2098	550	550.0
2099	555	555.0
2100		

Abstract

comprehensive health care services for all children. The program is designed to ensure that all children have access to the same quality of care, regardless of their race, ethnicity, or socioeconomic status. The program is designed to ensure that all children have access to the same quality of care, regardless of their race, ethnicity, or socioeconomic status.

[illegible]

Abstracts of papers presented at the 1997 Annual Meeting of the American Society for Environmental and Evolutionary Biology, 1-4 January 1997, at the University of Arizona, Tucson, Arizona, USA. For more information on the meeting, visit the ASEREB web site at <http://www.asereb.org>.

© 2006 The Authors
Journal compilation © 2006 Blackwell Publishing Ltd



	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2
--	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	---

The Old Paper Factory • 45 Gloucester Crescent, London NW1 3DE
Tel: 01 494 1999



Editorial Board

Software and hardware over the counter for Signal Spectrum, ZX-11, BBC, Vio 10, CRM-44, Microtech, Acom, Adams, etc.

- COMPUTERS
 - MONITORS
 - KEYBOARDS
 - TAPES
 - RANPACKS
 - BOOKS
 - DISCS
 - LIGHT PENS
- * COMMERCIAL *
* COMMERCIAL *

Business/Summer Programs available:
Located directly opposite Upper Main Line
Summer. Visit us or ring for friendly service. See
us and we believe you have.

© 2004 Blackwell Publishing Ltd, *Journal of Internal Medicine* 255: 111–118

**12 STATION APPROACH
EPSOM, SURREY
EPSOM 21531**

A large, three-dimensional number '50' in a metallic, brushed metal finish. The number is positioned at the top of the page, with the '5' and '0' having a slight shadow beneath them, giving it a sense of depth. The background is dark and textured, resembling a close-up of a metallic surface.

FROM **cascode**

ONLY £9.95

NOW AVAILABLE FOR
COMMODORE 64

50 GAMES ON ONE CASSETTE

ORACLE® **DBMS** and **System** **Security** **ATLAS** **COMPASS** **Java** **Web**

EXPERIENCE: 20+ YEARS
CONTACT: 800.888.8888

Name: _____
 Address: _____
 City: _____
 State: _____ Zip: _____
 Phone: _____

[illegible]

© 2004 Blackwell Publishing Ltd *Journal of Internal Medicine* 255: 105–112

Figure 1. Schematic representation of the experimental design. The subjects were divided into two groups: the control group and the experimental group. The control group received a standard training program, while the experimental group received a training program with a focus on the specific skills required for the task. The results of the training program were compared between the two groups.

Figure 1. Schematic diagram of the experimental setup. The subject is seated in a chair and views the screen through a mirror. The screen displays the target and the starting position of the hand. The hand is moved from the starting position to the target position. The distance between the starting position and the target is the reach distance. The distance between the target and the starting position is the reach distance. The distance between the target and the starting position is the reach distance.

10/10/2016 10:00 AM
 10/10/2016 10:00 AM

Marcello
 Giovanni (Italy)
 Building 4, 1-3 Piazza Giovanni, Monopoli
 70013, Italy
 Tel. +39 080 430 00 00

1000 10000

What's this? A computer game that requires a pencil and paper? Your mind will **BOGGLE**! What's more, two can play! Just check the letters on the screen and make up as many words as you can from them within the time limit — the more letters in your words the more you score. So type in this up to the moment version of a family favourite, and put your brain cells into high gear. Full instructions are given in the program.



by J.
WINCHESTER
for
ZX81



```

1 REM *** BOGGLE ***
2 BASIC 2000
3 REM *** J. WINCHESTER ***
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958
959
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000
1001
1002
1003
1004
1005
1006
1007
1008
1009
1010
1011
1012
1013
1014
1015
1016
1017
1018
1019
1020
1021
1022
1023
1024
1025
1026
1027
1028
1029
1030
1031
1032
1033
1034
1035
1036
1037
1038
1039
1040
1041
1042
1043
1044
1045
1046
1047
1048
1049
1050
1051
1052
1053
1054
1055
1056
1057
1058
1059
1060
1061
1062
1063
1064
1065
1066
1067
1068
1069
1070
1071
1072
1073
1074
1075
1076
1077
1078
1079
1080
1081
1082
1083
1084
1085
1086
1087
1088
1089
1090
1091
1092
1093
1094
1095
1096
1097
1098
1099
1100
1101
1102
1103
1104
1105
1106
1107
1108
1109
1110
1111
1112
1113
1114
1115
1116
1117
1118
1119
1120
1121
1122
1123
1124
1125
1126
1127
1128
1129
1130
1131
1132
1133
1134
1135
1136
1137
1138
1139
1140
1141
1142
1143
1144
1145
1146
1147
1148
1149
1150
1151
1152
1153
1154
1155
1156
1157
1158
1159
1160
1161
1162
1163
1164
1165
1166
1167
1168
1169
1170
1171
1172
1173
1174
1175
1176
1177
1178
1179
1180
1181
1182
1183
1184
1185
1186
1187
1188
1189
1190
1191
1192
1193
1194
1195
1196
1197
1198
1199
1200
1201
1202
1203
1204
1205
1206
1207
1208
1209
1210
1211
1212
1213
1214
1215
1216
1217
1218
1219
1220
1221
1222
1223
1224
1225
1226
1227
1228
1229
1230
1231
1232
1233
1234
1235
1236
1237
1238
1239
1240
1241
1242
1243
1244
1245
1246
1247
1248
1249
1250
1251
1252
1253
1254
1255
1256
1257
1258
1259
1260
1261
1262
1263
1264
1265
1266
1267
1268
1269
1270
1271
1272
1273
1274
1275
1276
1277
1278
1279
1280
1281
1282
1283
1284
1285
1286
1287
1288
1289
1290
1291
1292
1293
1294
1295
1296
1297
1298
1299
1300
1301
1302
1303
1304
1305
1306
1307
1308
1309
1310
1311
1312
1313
1314
1315
1316
1317
1318
1319
1320
1321
1322
1323
1324
1325
1326
1327
1328
1329
1330
1331
1332
1333
1334
1335
1336
1337
1338
1339
1340
1341
1342
1343
1344
1345
1346
1347
1348
1349
1350
1351
1352
1353
1354
1355
1356
1357
1358
1359
1360
1361
1362
1363
1364
1365
1366
1367
1368
1369
1370
1371
1372
1373
1374
1375
1376
1377
1378
1379
1380
1381
1382
1383
1384
1385
1386
1387
1388
1389
1390
1391
1392
1393
1394
1395
1396
1397
1398
1399
1400
1401
1402
1403
1404
1405
1406
1407
1408
1409
1410
1411
1412
1413
1414
1415
1416
1417
1418
1419
1420
1421
1422
1423
1424
1425
1426
1427
1428
1429
1430
1431
1432
1433
1434
1435
1436
1437
1438
1439
1440
1441
1442
1443
1444
1445
1446
1447
1448
1449
1450
1451
1452
1453
1454
1455
1456
1457
1458
1459
1460
1461
1462
1463
1464
1465
1466
1467
1468
1469
1470
1471
1472
1473
1474
1475
1476
1477
1478
1479
1480
1481
1482
1483
1484
1485
1486
1487
1488
1489
1490
1491
1492
1493
1494
1495
1496
1497
1498
1499
1500
1501
1502
1503
1504
1505
1506
1507
1508
1509
1510
1511
1512
1513
1514
1515
1516
1517
1518
1519
1520
1521
1522
1523
1524
1525
1526
1527
1528
1529
1530
1531
1532
1533
1534
1535
1536
1537
1538
1539
1540
1541
1542
1543
1544
1545
1546
1547
1548
1549
1550
1551
1552
1553
1554
1555
1556
1557
1558
1559
1560
1561
1562
1563
1564
1565
1566
1567
1568
1569
1570
1571
1572
1573
1574
1575
1576
1577
1578
1579
1580
1581
1582
1583
1584
1585
1586
1587
1588
1589
1590
1591
1592
1593
1594
1595
1596
1597
1598
1599
1600
1601
1602
1603
1604
1605
1606
1607
1608
1609
1610
1611
1612
1613
1614
1615
1616
1617
1618
1619
1620
1621
1622
1623
1624
1625
1626
1627
1628
1629
1630
1631
1632
1633
1634
1635
1636
1637
1638
1639
1640
1641
1642
1643
1644
1645
1646
1647
1648
1649
1650
1651
1652
1653
1654
1655
1656
1657
1658
1659
1660
1661
1662
1663
1664
1665
1666
1667
1668
1669
1670
1671
1672
1673
1674
1675
1676
1677
1678
1679
1680
1681
1682
1683
1684
1685
1686
1687
1688
1689
1690
1691
1692
1693
1694
1695
1696
1697
1698
1699
1700
1701
1702
1703
1704
1705
1706
1707
1708
1709
1710
1711
1712
1713
1714
1715
1716
1717
1718
1719
1720
1721
1722
1723
1724
1725
1726
1727
1728
1729
1730
1731
1732
1733
1734
1735
1736
1737
1738
1739
1740
1741
1742
1743
1744
1745
1746
1747
1748
1749
1750
1751
1752
1753
1754
1755
1756
1757
1758
1759
1760
1761
1762
1763
1764
1765
1766
1767
1768
1769
1770
1771
1772
1773
1774
1775
1776
1777
1778
1779
1780
1781
1782
1783
1784
1785
1786
1787
1788
1789
1790
1791
1792
1793
1794
1795
1796
1797
1798
1799
1800
1801
1802
1803
1804
1805
1806
1807
1808
1809
1810
1811
1812
1813
1814
1815
1816
1817
1818
1819
1820
1821
1822
1823
1824
1825
1826
1827
1828
1829
1830
1831
1832
1833
1834
1835
1836
1837
1838
1839
1840
1841
1842
1843
1844
1845
1846
1847
1848
1849
1850
1851
1852
1853
1854
1855
1856
1857
1858
1859
1860
1861
1862
1863
1864
1865
1866
1867
1868
1869
1870
1871
1872
1873
1874
1875
1876
1877
1878
1879
1880
1881
1882
1883
1884
1885
1886
1887
1888
1889
1890
1891
1892
1893
1894
1895
1896
1897
1898
1899
1900
1901
1902
1903
1904
1905
1906
1907
1908
1909
1910
1911
1912
1913
1914
1915
1916
1917
1918
1919
1920
1921
1922
1923
1924
1925
1926
1927
1928
1929
1930
1931
1932
1933
1934
1935
1936
1937
1938
1939
1940
1941
1942
1943
1944
1945
1946
1947
1948
1949
1950
1951
1952
1953
1954
1955
1956
1957
1958
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
2037
2038
2039
2040
2041
2042
2043
2044
2045
2046
2047
2048
2049
2050
2051
2052
2053
2054
2055
2056
2057
2058
2059
2060
2061
2062
2063
2064
2065
2066
2067
2068
2069
2070
2071
2072
2073
2074
2075
2076
2077
2078
2079
2080
2081
2082
2083
2084
2085
2086
2087
2088
2089
2090
2091
2092
2093
2094
2095
2096
2097
2098
2099
2100
2101
2102
2103
2104
2105
2106
2107
2108
2109
2110
2111
2112
2113
2114
2115
2116
2117
2118
2119
2120
2121
2122
2123
2124
2125
2126
2127
2128
2129
2130
2131
2132
2133
2134
2135
2136
2137
2138
2139
2140
2141
2142
2143
2144
2145
2146
2147
2148
2149
2150
2151
2152
2153
2154
2155
2156
2157
2158
2159
2160
2161
2162
2163
2164
2165
2166
2167
2168
2169
2170
2171
2172
2173
2174
2175
2176
2177
2178
2179
2180
2181
2182
2183
2184
2185
2186
2187
2188
2189
2190
2191
2192
2193
2194
2195
2196
2197
2198
2199
2200
2201
2202
2203
2204
2205
2206
2207
2208
2209
2210
2211
2212
2213
2214
2215
2216
2217
2218
2219
2220
2221
2222
2223
2224
2225
2226
2227
2228
2229
2230
2231
2232
2233
2234
2235
2236
2237
2238
2239
2240
2241
2242
2243
2244
2245
2246
2247
2248
2249
2250
2251
2252
2253
2254
2255
2256
2257
2258
2259
2260
2261
2262
2263
2264
2265
2266
2267
2268
2269
2270
2271
2272
2273
2274
2275
2276
2277
2278
2279
2280
2281
2282
2283
2284
2285
2286
2287
2288
2289
2290
2291
2292
2293
2294
2295
2296
2297
2298
2299
2300
2301
2302
2303
2304
2305
2306
2307
2308
2309
2310
2311
2312
2313
2314
2315
2316
2317
2318
2319
2320
2321
2322
2323
2324
2325
2326
2327
2328
2329
2330
2331
2332
2333
2334
2335
2336
2337
2338
2339
2340
2341
2342
2343
2344
2345
2346
2347
2348
2349
2350
2351
2352
2353
2354
2355
2356
2357
2358
2359
2360
2361
2362
2363
2364
2365
2366
2367
2368
2369
2370
2371
2372
2373
2374
2375
2376
2377
2378
2379
2380
2381
2382
2383
2384
2385
2386
2387
2388
2389
2390
2391
2392
2393
2394
2395
2396
2397
2398
2399
2400
2401
2402
2403
2404
2405
2406
2407
2408
2409
2410
2411
2412
2413
2414
2415
2416
2417
2418
2419
2420
2421
2422
2423
2424
2425
2426
2427
2428
2429
2430
2431
2432
2433
2434
2435
2436
2437
2438
2439
2440
2441
2442
2443
2444
2445
2446
2447
2448
2449
2450
2451
2452
2453
2454
2455
2456
2457
2458
2459
2460
2461
2462
2463
2464
2465
2466
2467
2468
2469
2470
2471
2472
2473
2474
2475
2476
2477
2478
2479
2480
2481
2482
2483
2484
2485
2486
2487
2488
2489
2490
2491
2492
2493
2494
2495
2496
2497
2498
2499
2500
2501
2502
2503
2504
2505
2506
2507
2508
2509
2510
2511
2512
2513
2514
2515
2516
2517
2518
2519
2520
2521
2522
2523
2524
2525
2526
2527
2528
2529
2530
2531
2532
2533
2534
2535
2536
2537
2538
2539
2540
2541
2542
2543
2544
2545
2546
2547
2548
2549
2550
2551
2552
2553
2554
2555
2556
2557
2558
2559
2560
2561
2562
2563
2564
2565
2566
2567
2568
2569
2570
2571
2572
2573
2574
2575
2576
2577
2578
2579
2580
2581
2582
2583
2584
2585
2586
2587
2588
2589
2590
2591
2592
2593
2594
2595
2596
2597
2598
2599
2600
2601
2602
2603
2604
2605
2606
2607
2608
2609
2610
2611
2612
2613
2614
2615

```



```

7200 PRINT "KEY TO THE 22. BEGINNING
7210 IF INKEYS="" THEN GOTO 800
7220 GOTO 40
7230 PRINT AT 2,10: "0 0 0 0 1 E"
7240 PRINT AT 2,7: "INSTRUCTIONS"
7250 GOTO 30
7260 CLS
7270 GOTO 10
7280 PRINT "H THEN RETURN
7290 PRINT "BOGGLE IS FOR 2 ON H
7300 PRINT "I WILL PRINT UP A 4
7310 PRINT "LETTERS. YOU HAVE 5
7320 PRINT "MINUTES (BY THE CLOCK)
7330 PRINT "YOU MUST FIND AS MANY
7340 PRINT "WORDS AS YOU CAN IN
7350 PRINT "LETTERS. THE LEFT
7360 PRINT "20 FACHING EACH OTHER
7370 PRINT "SOME. SO TO GET ""H

```

```

5110 PRINT "MUST EITHER BE ABOVE
5120 OR 04. OR
5130 PRINT "BEHIND THE 210 BINGO
5140 PRINT "IS VALID. THE 1 RUD
5150 PRINT "LINK UP WITH THE 2.
5160 PRINT "I NEED NOT LINK WITH
5170 PRINT "THE NEXT 1.
5180 PRINT "AS BEFORE. NOW CAN A
5190 PRINT "BE REPEATED"
5200 PRINT "IN THE SAME WORD UNL
5210 PRINT "SERIOUSLY APPEARS THE
5220 PRINT "THE O MUST LINK WITH
5230 PRINT "TO GIVE ""HELLO""
5240 PRINT AT 21,0: "PRESS A KEY
5250 TO GO ON"
5260 IF INKEYS="" THEN GOTO 507
5270 CLS
5280 PRINT "WHEN YOUR FINE IS FI
5290 PRINT "WILL LET YOU KNOW.
5300 PRINT "HERE'S ALONG THE WORD
5310 PRINT "IF ANY ONE ELSE ALSO
5320 PRINT "WORD THEN EVERYONE O
5330 PRINT "WORD FROM THEIR LEFT
5340 PRINT "FOR ANY WORD NOBODY
5350 PRINT "SLAP GOT THAT PLAYER
5360 PRINT "3COME 23 FOLLOW"
5370 PRINT TAB 0, 0: 4 LETTERS =1
5380 PRINT TAB 0, 5 LETTERS =2
5390 PRINT TAB 0, 6 LETTERS =3
5400 PRINT TAB 0, 7 LETTERS =4
5410 PRINT TAB 0, 8 LETTERS =1
5420 PRINT "USUALLY AT LEAST 4 0
5430 PRINT "PLAYED. WITH THE WIN
5440 PRINT "THE LARGEST TOTAL OF
5450 PRINT "THE 210."
5460 PRINT "PS. A 0 COUNTS AS A
5470 AND 20
5480 PRINT "2 LETTERS IF INCLUDE
5490 PRINT AT 20,0: "PRESS A KEY
5500 IF INKEYS="" THEN GOTO 1100
5510 CLS
5520 RETURN

```

```

1000 PRINT AT 10,1: "PLEASE WAIT
1010 UNTIL AS I HAVE...THE 0. WORK
1020 OUT THE 20000"
1030 PRINT AT 10,1: "THE SCREEN U
1040 20 SLASH FOR...THE 0. ABOUT
1050 PRINT AT 10,7: "BY J.UTCHESON
1060 PRINT AT 10,7: "BY J.UTCHESON

```

```

1070 PRINT AT 10,7: "BY J.UTCHESON
1080 PRINT AT 10,7: "BY J.UTCHESON
1090 PRINT AT 10,7: "BY J.UTCHESON
1100 PRINT AT 10,7: "BY J.UTCHESON
1110 PRINT AT 10,7: "BY J.UTCHESON
1120 PRINT AT 10,7: "BY J.UTCHESON

```

```

1130 PRINT AT 10,7: "BY J.UTCHESON
1140 PRINT AT 10,7: "BY J.UTCHESON
1150 PRINT AT 10,7: "BY J.UTCHESON
1160 PRINT AT 10,7: "BY J.UTCHESON
1170 PRINT AT 10,7: "BY J.UTCHESON
1180 PRINT AT 10,7: "BY J.UTCHESON

```



Don't Just Sit There Move!

SINGULAR'S ADVERTISING must presently be driving the spectators as a sign. Especially. Main offering a definition of 256 x 192. Over the small print doesn't tell you that you can only PRINT in a single defined grid of 32 x 32 character squares.

Okay, so you can use Plot to produce static pictures with the full resolution—but that's what they are, BASIC and uninteresting, at least from a games viewpoint. As for the alternative? Well, what alternative? You speed someone else around the characters by plotting certain alternate points on the screen but that is agonizingly slow. You could of course forget that you've got a high resolution machine altogether and opt for low resolution character movement in any games you write and watch characters move and make great jumps as they are transported around the screen. A lot of very good, mainly BASIC, games have been written in this way. Mind you if you forget about the high resolution you might as well forget all about colour, sound and all the rest of the associated paraphernalia and replace plot spectrum with a slightly less graphically advanced system—perhaps a 2400 and a precision jelly!

Fortunately the problem is not insurmountable and can be solved with a short program although it does require us to utilize the two divided language machine code. A short machine code program to perform such a task is shown in Listing 1. The machine code is forced onto drive 1000 (100 well away from the

danger of overwriting by BASIC). Since the address of RAMTOP differs on the 16K machine from the 48K it's necessary to have two versions of the program, one for each memory size. If you own a 16K computer then you're looking at 2 rather than the first listing. All the program does is to poke the machine code into memory. When you've finished keyboard handling you're ready to RUN it. The program attempts to verify the accuracy of the data and you're made a request to tell him your name and give you an idea of where to look for it. Once the program has successfully RUN you can save your machine code on tape using the commands below.

For 48K owners — SAVE
"Name Print" 0000
45194,262
For 16K owners — SAVE
"Name Print" 0000
33448,262

You can reload the program at any time by using
For 48K owners — CLAS
45194,262 — CODE
For 16K owners — CLAS
33448,262 — CODE

It's a good idea to save and verify a couple of times in case any data-typing errors should befall your text recording. All that the machine code does is the operation of poking a character onto the screen but at a much more respectable rate than BASIC can ever hope to do. The machine code also has to do a lot of fiddling about with binary numbers when a graphic operation has to move characters around.

To print a character using the routine requires 2 poles followed by a machine code 1000 call,

not surprisingly. The locations which are poked differ between the two versions of the program so remember to look at the right ones at you could find your machine crashing any day. The first routine defines the x co-ordinate of the position where you want the character you wish to print to show any fields with poles and 1000 state words it's a good idea to have a small general purpose sub routine which you can call whenever you want to print a character. Such a sub routine is listed below.

For 16K Machines

9900 POKE 32304,000
all
9910 POKE 32304,
POKE 32304,y
9920 RANDRIZE USR
32301
9930 RETURN

For 48K Machines

9900 POKE 45194,000
all
9910 POKE 45194,y
POKE 45194,y
9920 RANDRIZE USR
45191
9930 RETURN

When the sub routine is called, using "GO SUB 9900", the variables x, y and y must hold certain parameters. All that the character that is to be printed. The program allows you to print any of the basic character set with codes 33-120 plus user definable characters with codes 166-184 but you're not allowed to print letters as the graphics character set is available on the top row of the keyboard when in graphics mode.

X holds the x co-ordi-

nate (0-255) position of the top left hand corner of the character to be printed. Y holds the y co-ordinate (0-179) of the point from that, while PLOT and CLP are the y co-ordinates as numbered from the top rather than from the bottom of the screen so that 0 is at the top left rather than at the bottom left hand corner of the screen. For example LET x=10 LET y=128 LET y=00 GOSUB 9900 sends the letter A along in the middle of the screen. Try it and see the following listing.

10 LET x=00
20 FOR a=1 TO 255
30 LET y=a-1 LET a=y
- PLOT Space
40 GOSUB 9900
50 LET x=x+1 LET a=y-1
60 GOSUB 9900
70 NEXT a
80 STOP
9000 (The 9900 listing required)

It will obviously move the letter O across the screen from left to right. Ignore that before a new 'O' can be printed the old one has to be erased by overwriting it with a space. That will flicker in a split of the fact that the 'O' is completely absent from the screen for a short period just after the old version has been overprinted. In a later article I will explain how to overcome this problem (so a large letter) if you had STOP'd at the end of line 28 (the next movement will be much faster although not quite as smooth). You can arrange the x and y co-ordinates so that the movement is a little more interesting. You can use some of the computer's big and other mathematical functions to produce

HI-RES ANIMATION ROUTINES FOR ZX SPECTRUM

same fascinating movement patterns. An example is given in the following listing.

```

10 LET x=128: LET y=64
20 FOR i=0 TO 255
30 LET dx=dx: LET
  dy=dy
40 LET r=ATN(dy/
  (dx+128))
50 LET ax=128+rcos
  (r)
60 LET ay=64+rsin
  (r)
70 LET ax=INT ax: LET
  ay=INT ay
80 GOTO 20
90 STOP
1000 Hi-Res Printing
  routine
  
```

Listing 3 illustrates another aspect of movement — acceleration and deceleration. You can envision a dot about the screen using the cursor keys. Upon pressing key in the Q, usually just based at the screen's centre, moves towards the dot. Its velocity is not constant as the Q moves the dot its speed gradually decreases. The hard work of the program is done by lines 1000 and 1010 which basically work out what one tenth of the distance between the dot and the Q and moves the Q that distance towards the dot. As the Q moves the dot this range gradually gets smaller as the Q moves more slowly.

Take particular care in typing in these listings, particularly the M/C bits in the data sections.

Listing 3—

```

10 LET dx=0: LET dy=0: LET i=0
20 LET dx=dx: LET dy=dy
30 LET dx=dx
40 LET dx=128: LET dy=64: GO SUB 2000
50 LET ax=128: LET ay=64: PLUT ax:ay
60 LET ax=ay
70 IF ax=128 THEN GO TO 40
80 IF ax=64 THEN ax=128: THEN GO SUB 20
90
10 LET dx=dx: LET dy=dy: IF ax=128
  THEN LET dx=128
110 IF ax=128 THEN LET dy=dy+1
120 IF ax=128 THEN LET dx=dx+128
130 PLUT dx:ay:ay=ay+1
140 PLUT ax:ay
150 GO TO 40
160 LET ax=ay:ay=ay+1: THEN LET ax=
  ay
170 LET ax=ay:ay=ay+1
180 LET ax=ay:ay=ay+1
190 LET ax=ay:ay=ay+1
2000 SUB 2000
2100 IF ax=128 AND ay=ay THEN PRINT
  ax:ay
2200 PRINT ax:ay:ay=ay+1
2300 PRINT ax:ay:ay=ay+1
2400 PRINT ax:ay:ay=ay+1
2500 PRINT ax:ay:ay=ay+1
  
```

Listing 1—

```

10 REM Hi-Res Printing Routine
20 REM By Richard Taylor
30 REM
40 CLEAR 255
50 LET ax=128
60 FOR i=0 TO 4
70 LET ax=128:ay=64
80 IF ax=128 THEN ax=128:ay=64
90 GO TO 20
100 FOR ax=0 TO 128:ay=64:ay=64
110 LET ax=128:ay=64:ay=64
120 LET ax=128:ay=64:ay=64
130 PRINT ax:ay
140 LET ax=128:ay=64
150 LET ax=128:ay=64
160 LET ax=128:ay=64
170 PRINT ax:ay
180 PRINT ax:ay
190 PRINT ax:ay
200 PRINT ax:ay
210 PRINT ax:ay
220 PRINT ax:ay
230 PRINT ax:ay
240 PRINT ax:ay
250 PRINT ax:ay
  
```

Listing 2—

```

10 REM Hi-Res Printing Routine
20 REM By Richard Taylor
30 REM
40 CLEAR 255
50 LET ax=128
60 FOR i=0 TO 4
70 LET ax=128:ay=64
80 IF ax=128 THEN ax=128:ay=64
90 GO TO 20
100 FOR ax=0 TO 128:ay=64:ay=64
110 LET ax=128:ay=64:ay=64
120 LET ax=128:ay=64:ay=64
130 PRINT ax:ay
140 LET ax=128:ay=64
150 LET ax=128:ay=64
160 LET ax=128:ay=64
170 PRINT ax:ay
180 PRINT ax:ay
190 PRINT ax:ay
200 PRINT ax:ay
210 PRINT ax:ay
220 PRINT ax:ay
230 PRINT ax:ay
240 PRINT ax:ay
250 PRINT ax:ay
  
```



"When you've seen all your favourite videos, beaten space invaders and want more than computer logic..."



The Yamaha PS-55

The PS55 enables you to make your own music right from the start.

At the touch of a button, you can recreate the fantastic sounds of Disco, Rock, Jazz and Classical music.

And you have the freedom to play it your way—because never before has there been so much music in a portable electronic keyboard.

The PS55 has a Solo Section, an Orchestral

Section, Drum Rhythms, plus hand-claps and a drum fill-in.

More than 48 sensational musical effects—ranging from Symphonic to Cosmic.

There's a built-in 3 track recording unit for independent recording from each Section.



And for a completely integrated home entertainment system you can easily connect up and playback through your stereo hi-fi cassette deck and speakers.

The PS55 has practically limitless creative potential, and promises a lot more than computer logic.

Available at your selected Yamaha Mainline Dealer. For complete details—simply return the coupon...



YAMAHA SPECIAL PROMOTION/SONSON, MOUNT AIRLIE,
SLEUTH/CYRILSON RD/41/5, (SUSSEX), TEL: 02030 71775
OR MR. ANDREW PHOENIX, 02030-640232

Please insert the further details of the PS-55 and name of your nearest Yamaha Mainline Dealer.

Name _____

Address _____

BENDERS

the other hand, I've been designed so that a computer built a lot of movies can get results at a first sitting.

I switched into Complete Technical Motion mode and did Andrew Paterson's video motion, a piece of furniture and a pencil on the end of a wireframe foot of me. I picked up the pencil and tried writing with it. "The broken" I said. A average look-and-feel caught me from behind. Look at the screen, don't understand May. Why are things of me so slow? I looked at the screen and there, more enough, was a colorful reproduction of my artwork. I think writing my

name, got a drawing and tried again. Time to let an expert take over. That's when I saw Tilly, one of the Motion Picture Company's designers, stand in. I'd given him a few photos of myself to give around with an Airplane. Something I might come to realize. I watched as she walked over. Oh my God!

The whole concept of Benders keeps all the computer writings completely invisible from the user. The user's view need a lot-based. The piece of furniture is in fact a drawing table, the pencil a stylus and the mouse is hidden in a complex



Not just TTX, but your actual Airplane stuff as well. The series of Cents was shown using Quattro's Paintbox — from the end — user point of view, a for mice tablet and a scribbly old bit of pencil — then colored and overlaid to form a slowpiece. color logue cover (left) Total of instantly accessible shades, a busy texture. But when together to if they were paint and this number expands up to a call 30 million (left over image).

Access time for any one image using Paintbox is 1.5 seconds. However images can be stored on film or video tape and then run as fast as you like.



access the drawing anything available with traditional drawing methods, and more, but also more.

Using the system is simply fast. One with the system on the drawing table and the mouse comes up on the monitor. But there's more to it than that. When the system access the screen and the picture appears, a grid of 1000 points is shown. Touch the screen on a color and the system "picks up" the color. Touch one of the dots to select your favorite color and away you go. Then

access the good life. Paint a field of color on the drawing table, pick up another color, and you're in the drawing. That's all it takes to create a drawing. The system is built from the ground up to be fast.

Obviously all of this would be totally useless if created images couldn't be large. Images can be saved to film, then complete images and colors are saved into memory. Access time for one image is 0.5 seconds. Pretty

CRAFT DESIGN
& TECHNOLOGY



Turn to Page 79

It may come as a surprise to some of you characters, but words can exist in forms other than consequences of plots in a tasteful shade of amber. To render our acquaintance with the odd world of vellum, cuttlefish ink and teams of monks labouring on multi-coloured character-sets, we pulled a few recently published books off the shelves.

Screen Dumps Aid Beeb Books

STEP-BY-STEP PROGRAMMING ON THE BBC MICRO
IAN GRAMHAM (Dorling Kindersley "Screen Shot" £5.95)

As little as £5.95 it continuously proves there's no high art of any lack of interest in good first user manuals for the mainstream machines. Such manuals have been generally slow to arrive, but perhaps we have a contender in the tastefully produced Screen Shot series. It's not just for the BBC but also available for Spectrum, Electron, Apple II and C64 as well.

The format is easy to follow without being patronising as a child, slow by most expert's criteria with the best layout I have yet seen in a book of this sort. Doubly a brand are the

graphics of American manuals, or the obscurity of some British ones. Each of the large format pages is dedicated to a particular statement or function, and examples are given, and best of all, superbly illustrated with actual screen dumps.

Considering the production quality and care that has gone into this series, their price of £5.95 begins to look for better value than anything else reviewed on these pages. Each colour dump is written on colour, for example — what you see is (for once) really what you get. Outstandingly good and for beginners or vets. Beginners, heavily recommended.



SO "DORK SLAYER" IS A STRING VARIABLE!

THE COMPUTER & VIDEO GAME'S BOOK OF ADVENTURE
NORTH CAMPBELL
Mellon Press Hq. (75.95)
EXPLORING ADVENTURES ON THE BBC MODEL
PETER GERRARD
Duckworth £5.95

As mentioned elsewhere on this page, adventure theory never suffers from explanation. For that reason there's no shortage of exponents. Both these books tackle the subject fully, with Campbell using his theoretical bits to construct one well-explained master program, while Gerrard manages to

EXPLORING ADVENTURES on the BBC Model



give us three or about 40% more space. Both men clearly know their stuff, but where Campbell broadly takes on the entire field of microdork, Gerrard addresses one machine solely — perhaps the least suitable for adventures, the BBC 'B' machine. Using either book you could learn the essentials of adventure writing — or you could just go out and buy 'The Quest

— CHEAP BUT C·H·E·E·S·E·Y —

On the very *Amiga Games* for your *Amiga Computer*, *Amiga Games for your Amiga Computer* and *Amiga Games for your Amiga Computer*, all by and of Neil and Sam. Or not, as the case may be. And guess what? They're probably in the same category as the same category as we have here, guess what Neil and Sam have dished up for Com-

CRAZY GAMES FOR YOUR COMMODORE 64
IMM BENGO & SAM EDWARDS. Addison-Wesley £3.95
AMIGA GAMES FOR YOUR A TWIN COMPUTER
IMM BENGO & SAM EDWARDS. Addison-Wesley £3.95
ASTOUNDING GAMES FOR YOUR APPLE COMPUTER
IMM BENGO & SAM EDWARDS. Addison-Wesley £3.95

munity in this line. The other two, they also dish up — plus or take a liking or two — for

those two other £5.95 machines, the Apple and the Amiga. Are the games any good?

Who knows? Probably. After all, to receive this kind of whole-sale translation they have to be. These books are of course Addison-Wesley, and are printed at the new state-of-the-art, but not been so understood any of it. One stage up the down from simply buying software and running it. On which one Neil and Sam are definitely cheaper, and one stage up the down from buying a load of computer magazines in which one Sam and Neil also average 30 pages a listing, are definitely more expensive in the last instance. For a feeling that the buyers will want some documents seen with their real-to-see also. Cheap at the price — or just cheap depending on your real book figures.

AMIGA GAMES FOR YOUR AMIGA COMPUTER
IMM BENGO & SAM EDWARDS

CRAZY GAMES FOR YOUR COMMODORE 64
IMM BENGO & SAM EDWARDS

AMIGA GAMES FOR YOUR A TWIN COMPUTER
IMM BENGO & SAM EDWARDS

Now YOU can go for gold ...with the



Once pitting yourself against the world's best at the summer's Olympics?

You can do so without going anywhere near Los Angeles — with the most challenging package of programs of 1984.

MICRO OLYMPICS is more than a game. It's a brilliantly written collection of 11444 track and field events.

And because we knew we're going to sell many thousands of them we've brought the price right down — to just £7.95.

Ever imagined yourself as another Gail Carr? Then try to run against the world record holder at 1600 metres. And if that distance is too much for you then there's always the 100, 200, 400 and 800 metres to have a go at.

Not much good at running? Don't worry. **MICRO OLYMPICS** has many more challenges for you. Why not try your skill at the high jump or the long jump?

And if you can't beat the computer at running or jumping then you can always throw things around in frustration! The trouble is that it's just as hard to be a champion at the darts, the hammer or the javelin.

And the game really takes the event to new heights!

Yes, it's fast, furious fun, pitting yourself against the world's best times and distances on your screen.

You may not be another Steve Ovett or Alan Wells, but with practice you **COULD** become the Micro Olympics Champion!



Also available from WH Smith
and all other leading stores.



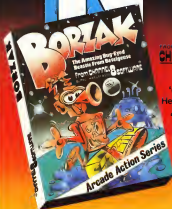
Play Micro Olympics
— and let your fingers
do the running!

Send for it today

Please send me... <input type="checkbox"/> Micro Olympics at £7.95 <input type="checkbox"/> 1 further cheque made payable to: Solihull Publications Ltd for £...		<input type="checkbox"/> 480 Editions <input type="checkbox"/> Comprehensive RM <input type="checkbox"/> SAC 8" <input type="checkbox"/> Barium Please tick one	£5.95 net
I want to pay by <input type="checkbox"/> cheque <input type="checkbox"/> cash		Supply date...	
Name...		Address...	

Post to: Micro Olympics after Solihull Publications,
81 Chester Road, Hazel Grove, Stockport SK7 9ST

THE No.1



FROM
CHANNEL 8 SOFTWARE

'Oh Borzak ★■?!'
He's just fallen in the bog.

'Oh Borzak ★■?!'
He's just been hit
by a piranha.

Borzak the amazing Ray-spy battles from Outer Space is out Number One maybe he will be yours.

Borzak runs, jumps and ducks on the way to his spaceship, on Am Spectrum and Commodore 64 with keyboard or joystick control. Price £5.95 including VAT.

'Oh Borzak ★■?!' Don't curse too loud if you can't get him back to his ship.

OTHER CHANNEL 8 SOFTWARE TITLES

SHARK FABLE
THE BLACK BIRD
THE CONSTRUCTION
COPY FOR KIDS - LARGER
PRIMARY MATHS
MATHS TUTOR: TODDLER TUTOR
'SITCHA' MATHS
ASTRAL ZONE

FEASIBILITY EXPERIMENT
TEN LITTLE INDIANS
THE MURDER MYSTERY
ARROW OF DEATH PT. 1
ESCAPE FROM PULSANT



THE GOLDEN BATEM
ARROW OF DEATH PT. 2
PERFECT & AMOROUS
THE TOMB MACHINE
WARRIORS: DICE

CHANNEL 8 SOFTWARE
51 Fiddlegate, Preston,
Lancs PR1 6SH.
Tel: (0772) 63667



Selected titles available from larger branches of . Games at Debenhams, Linn's, Spectrum dealers and good computer shops everywhere, for sale of difficulty send P.O. to Channel 8 Soft.

ALL GAMES IN
100% M/C

Solar SOFTWARE

51 Meadowcroft, Redcliffe, Manchester
M26 0JP England

QUALITY ARCADE ACTION GAMES FOR THE

COMMODORE 64 at £7.95 each

GALAXIONS

The earth is being invaded by an alien force, the GALAXIONS have arrived from a dying planet, determined to destroy civilization as we know it.

They come in formation, swooping and diving towards the planet earth. You and you alone can save mankind from the terrifying destruction the aliens threaten us with.

Wreckman 64

A fantastic version of his popular arcade game

Wishes to the Mercies

In days of old when knights were bold and the sherrif was in power to play this game guide Robin Hood, to Marion locked up in the tower

New Bizz Buzzer

When teddy to the game went there came the smell of honey. So all the went to find the five to fill his empty tummy the bees that guard honey pots are sharpening up their stings as teddy fills his empty tummy sweet melody's he sings.

£5.95



New Alley Cat



Guide Thomas the cat along the 13 walls of SOLAR street to his felly friend who awaits him at the end of the wall, but beware of the flying boots bottles and naps, which are just a few of the hazards you will encounter

New Bogg Man



Guide Bogg up the ladders, to collect a coin from the top of the screen, but beware! the bogg men are out to get you. He must return to the bottom of the screen, avoiding the bogg men and insert the coin in the electric meter. The light will come on enabling you to see the pitch fork and after retrieving it, kill the bogg men



UNEXPANDED VIC 20

Space Invaders	£5.00	Wreckman	£5.00
Scavenger	£5.00	GALAXIONS	£5.00
GUN FIGHT	£5.00		
RETRO	£5.00	Robin Hood	£6.00

8 & 16K EXPANDED VIC 20

APRIL £7.95

All our games are available mail order P&P included from the above address. Orders sent by return post.

Also available from all good computer shops.

Solar Software Ltd is a wholly owned subsidiary of Solar Software Ltd. Solar Software Ltd is a wholly owned subsidiary of Solar Software Ltd. Solar Software Ltd is a wholly owned subsidiary of Solar Software Ltd.

ADVENTURE GAMES FOR THE COMMODORE 64 (J. J. BRADBURY: Granada £6.95)
 COMMODORE 64 GAMES (KEVIN BEGIN: Duckworth £6.95)
 GAMES COMMODORE 64 COMPUTERS PLAY (ROBERT YOUNG & ROGER BUSH: Addison-Wesley £6.95)
 COMMODORE 64 GRAPHICS AND SOUND (STEVE MORSE: Granada £6.95)

Why DS 357? What is it about this particular price figure that makes it so right, so appropriate for publishers of computer books? In fact it's a truism that most computer books are ludicrously overpriced, certainly compared to computer magazines. The assembly and (more importantly) documentation of a

ME AND MY COMMODORE

handful of decent games for the ubiquitous 64 is not the easiest job in the world. True, but neither is it the hardest. Young and

Bush give us a mixed bag of twenty, all nicely lined in "untranslated" versions which on the whole is acceptable. But on

the whole they don't go as far as they might into the business of explanation.

Better in this regard is Kevin Begin, he provides 18 games, most carefully mixed. Arcade games, chess, short adventure, chess utilities through the lot — each of these, by the way, is the sort of a good-sized magazine version.

Granada's two offerings by Bradbury and Morse, taken to equally between how-to manuals and example listings. Certainly there is a need for specialist volumes on the 64 to explain all these things the official manual leaves out. Both these books are well thought-out and Morse's can also serve as a dedicated games writing manual. Bradbury takes us deep into adventure theory — sentence parsing, grandfather-father-objects, cell structure for locations, and so forth. The verbose splitting-hair involved in a adventure structure is very clearly explained throughout.



Slinky brown stuff

SPECTRAVIDEO COMPUTING (IAN SINCLAIR: Granada £6.95)
 THE MICRO USER'S BOOK OF TAPE RECORDING (MIKE SALEM: Duckworth £2.95)

Despite glowing reviews when they first appeared about six months ago, the Spectravideo range of computers (two, actually) have not quite exactly taken off like polestars. Perhaps, as MSX draws near their time will come. In the meantime Granada, clearly with one eye on MSX, have issued a decent first-user manual for the cheaper Spectra machine, written by the respected Ian Sinclair (no relation). It is an honest and reasonably thorough piece of work,

no ifs, and I like the way Sinclair owned up to the fact that he'd found no way to reprogramme the function keys.

Assuming tape recording is your thing and the sight of reels rotating sends you into spasms of ecstacy, Mike Salem's lot (good?) of knowledge on the subject should fill you with joy. Mysteries and topics like Head Amplitude Angle and Cassette Interface Waveforms — all perfectly useful stuff, fill the book — grace the 90 pages of this slimline but learned little tome. Scrap that disc! Dump that EPROM! Cassettes and all other forms of slinky brown stuff are here to stay. At least, if they're not, then Mike Salem is in bad trouble.



W = UP
X = DOWN
S = FIRE
O = FORWARD
A = STOP

There you are, lifting off
the surface of Planet
Flavor in the warm dust
of an early September
morning inside the ship
— a calm atmosphere.
Only slight courtesy the
schooner? Some kids on
the way. This conference
(with us and us) is
settling in the right
hand. Suddenly your
January the Day says
"Stop at these waters
and there is abundance" at
all! Two birds, sometimes
singing, but silent.

For Vic-20
(unexpanded)

```

50 PRINT "END" FOR D=0 TO 1045
51 PRINT "OK" TO RUN
52
53 SET A: IF A=0 THEN GOUS 1200
54 IF A=1 THEN GOA RUN 100
55
56 GOTO 55
57
100 FOR I=0 TO 99: IF A=0: FILL
110 B=0: FOR J=0 TO 99: IF A=0: FILL
120 FOR K=0 TO 99: PRINT "I="; I; "J="; J; "K="; K
130 B=0: FOR L=0 TO 99: IF A=0: FILL
140 NEXT I
150 FOR J=0 TO 99: IF A=0: FILL
160 PRINT LEFT$(B, 10); "OK"
170 FOR I=0 TO 99: IF A=0: FILL
180 FOR J=0 TO 99: IF A=0: FILL
190 FOR K=0 TO 99: IF A=0: FILL
200 IF A=0: FILL
210 NEXT I
220 FOR L=0 TO 99: IF A=0: FILL
230 FOR M=0 TO 99: IF A=0: FILL
240 FOR N=0 TO 99: IF A=0: FILL
250 FOR O=0 TO 99: IF A=0: FILL
260 FOR P=0 TO 99: IF A=0: FILL
270 FOR Q=0 TO 99: IF A=0: FILL
280 FOR R=0 TO 99: IF A=0: FILL
290 FOR S=0 TO 99: IF A=0: FILL
300 FOR T=0 TO 99: IF A=0: FILL
310 FOR U=0 TO 99: IF A=0: FILL
320 FOR V=0 TO 99: IF A=0: FILL
330 FOR W=0 TO 99: IF A=0: FILL
340 FOR X=0 TO 99: IF A=0: FILL
350 FOR Y=0 TO 99: IF A=0: FILL
360 FOR Z=0 TO 99: IF A=0: FILL
370 FOR A=0 TO 99: IF A=0: FILL
380 FOR B=0 TO 99: IF A=0: FILL
390 FOR C=0 TO 99: IF A=0: FILL
400 FOR D=0 TO 99: IF A=0: FILL
410 FOR E=0 TO 99: IF A=0: FILL
420 FOR F=0 TO 99: IF A=0: FILL
430 FOR G=0 TO 99: IF A=0: FILL
440 FOR H=0 TO 99: IF A=0: FILL
450 FOR I=0 TO 99: IF A=0: FILL
460 FOR J=0 TO 99: IF A=0: FILL
470 FOR K=0 TO 99: IF A=0: FILL
480 FOR L=0 TO 99: IF A=0: FILL
490 FOR M=0 TO 99: IF A=0: FILL
500 FOR N=0 TO 99: IF A=0: FILL
510 FOR O=0 TO 99: IF A=0: FILL
520 FOR P=0 TO 99: IF A=0: FILL
530 FOR Q=0 TO 99: IF A=0: FILL
540 FOR R=0 TO 99: IF A=0: FILL
550 FOR S=0 TO 99: IF A=0: FILL
560 FOR T=0 TO 99: IF A=0: FILL
570 FOR U=0 TO 99: IF A=0: FILL
580 FOR V=0 TO 99: IF A=0: FILL
590 FOR W=0 TO 99: IF A=0: FILL
600 FOR X=0 TO 99: IF A=0: FILL
610 FOR Y=0 TO 99: IF A=0: FILL
620 FOR Z=0 TO 99: IF A=0: FILL
630 FOR A=0 TO 99: IF A=0: FILL
640 FOR B=0 TO 99: IF A=0: FILL
650 FOR C=0 TO 99: IF A=0: FILL
660 FOR D=0 TO 99: IF A=0: FILL
670 FOR E=0 TO 99: IF A=0: FILL
680 FOR F=0 TO 99: IF A=0: FILL
690 FOR G=0 TO 99: IF A=0: FILL
700 FOR H=0 TO 99: IF A=0: FILL
710 FOR I=0 TO 99: IF A=0: FILL
720 FOR J=0 TO 99: IF A=0: FILL
730 FOR K=0 TO 99: IF A=0: FILL
740 FOR L=0 TO 99: IF A=0: FILL
750 FOR M=0 TO 99: IF A=0: FILL
760 FOR N=0 TO 99: IF A=0: FILL
770 FOR O=0 TO 99: IF A=0: FILL
780 FOR P=0 TO 99: IF A=0: FILL
790 FOR Q=0 TO 99: IF A=0: FILL
800 FOR R=0 TO 99: IF A=0: FILL
810 FOR S=0 TO 99: IF A=0: FILL
820 FOR T=0 TO 99: IF A=0: FILL
830 FOR U=0 TO 99: IF A=0: FILL
840 FOR V=0 TO 99: IF A=0: FILL
850 FOR W=0 TO 99: IF A=0: FILL
860 FOR X=0 TO 99: IF A=0: FILL
870 FOR Y=0 TO 99: IF A=0: FILL
880 FOR Z=0 TO 99: IF A=0: FILL
890 FOR A=0 TO 99: IF A=0: FILL
900 FOR B=0 TO 99: IF A=0: FILL
910 FOR C=0 TO 99: IF A=0: FILL
920 FOR D=0 TO 99: IF A=0: FILL
930 FOR E=0 TO 99: IF A=0: FILL
940 FOR F=0 TO 99: IF A=0: FILL
950 FOR G=0 TO 99: IF A=0: FILL
960 FOR H=0 TO 99: IF A=0: FILL
970 FOR I=0 TO 99: IF A=0: FILL
980 FOR J=0 TO 99: IF A=0: FILL
990 FOR K=0 TO 99: IF A=0: FILL
1000 FOR L=0 TO 99: IF A=0: FILL
1010 FOR M=0 TO 99: IF A=0: FILL
1020 FOR N=0 TO 99: IF A=0: FILL
1030 FOR O=0 TO 99: IF A=0: FILL
1040 FOR P=0 TO 99: IF A=0: FILL
1050 FOR Q=0 TO 99: IF A=0: FILL
1060 FOR R=0 TO 99: IF A=0: FILL
1070 FOR S=0 TO 99: IF A=0: FILL
1080 FOR T=0 TO 99: IF A=0: FILL
1090 FOR U=0 TO 99: IF A=0: FILL
1100 FOR V=0 TO 99: IF A=0: FILL
1110 FOR W=0 TO 99: IF A=0: FILL
1120 FOR X=0 TO 99: IF A=0: FILL
1130 FOR Y=0 TO 99: IF A=0: FILL
1140 FOR Z=0 TO 99: IF A=0: FILL
1150 FOR A=0 TO 99: IF A=0: FILL
1160 FOR B=0 TO 99: IF A=0: FILL
1170 FOR C=0 TO 99: IF A=0: FILL
1180 FOR D=0 TO 99: IF A=0: FILL
1190 FOR E=0 TO 99: IF A=0: FILL
1200 FOR F=0 TO 99: IF A=0: FILL
1210 FOR G=0 TO 99: IF A=0: FILL
1220 FOR H=0 TO 99: IF A=0: FILL
1230 FOR I=0 TO 99: IF A=0: FILL
1240 FOR J=0 TO 99: IF A=0: FILL
1250 FOR K=0 TO 99: IF A=0: FILL
1260 FOR L=0 TO 99: IF A=0: FILL
1270 FOR M=0 TO 99: IF A=0: FILL
1280 FOR N=0 TO 99: IF A=0: FILL
1290 FOR O=0 TO 99: IF A=0: FILL
1300 FOR P=0 TO 99: IF A=0: FILL
1310 FOR Q=0 TO 99: IF A=0: FILL
1320 FOR R=0 TO 99: IF A=0: FILL
1330 FOR S=0 TO 99: IF A=0: FILL
1340 FOR T=0 TO 99: IF A=0: FILL
1350 FOR U=0 TO 99: IF A=0: FILL
1360 FOR V=0 TO 99: IF A=0: FILL
1370 FOR W=0 TO 99: IF A=0: FILL
1380 FOR X=0 TO 99: IF A=0: FILL
1390 FOR Y=0 TO 99: IF A=0: FILL
1400 FOR Z=0 TO 99: IF A=0: FILL
1410 FOR A=0 TO 99: IF A=0: FILL
1420 FOR B=0 TO 99: IF A=0: FILL
1430 FOR C=0 TO 99: IF A=0: FILL
1440 FOR D=0 TO 99: IF A=0: FILL
1450 FOR E=0 TO 99: IF A=0: FILL
1460 FOR F=0 TO 99: IF A=0: FILL
1470 FOR G=0 TO 99: IF A=0: FILL
1480 FOR H=0 TO 99: IF A=0: FILL
1490 FOR I=0 TO 99: IF A=0: FILL
1500 FOR J=0 TO 99: IF A=0: FILL
1510 FOR K=0 TO 99: IF A=0: FILL
1520 FOR L=0 TO 99: IF A=0: FILL
1530 FOR M=0 TO 99: IF A=0: FILL
1540 FOR N=0 TO 99: IF A=0: FILL
1550 FOR O=0 TO 99: IF A=0: FILL
1560 FOR P=0 TO 99: IF A=0: FILL
1570 FOR Q=0 TO 99: IF A=0: FILL
1580 FOR R=0 TO 99: IF A=0: FILL
1590 FOR S=0 TO 99: IF A=0: FILL
1600 FOR T=0 TO 99: IF A=0: FILL
1610 FOR U=0 TO 99: IF A=0: FILL
1620 FOR V=0 TO 99: IF A=0: FILL
1630 FOR W=0 TO 99: IF A=0: FILL
1640 FOR X=0 TO 99: IF A=0: FILL
1650 FOR Y=0 TO 99: IF A=0: FILL
1660 FOR Z=0 TO 99: IF A=0: FILL
1670 FOR A=0 TO 99: IF A=0: FILL
1680 FOR B=0 TO 99: IF A=0: FILL
1690 FOR C=0 TO 99: IF A=0: FILL
1700 FOR D=0 TO 99: IF A=0: FILL
1710 FOR E=0 TO 99: IF A=0: FILL
1720 FOR F=0 TO 99: IF A=0: FILL
1730 FOR G=0 TO 99: IF A=0: FILL
1740 FOR H=0 TO 99: IF A=0: FILL
1750 FOR I=0 TO 99: IF A=0: FILL
1760 FOR J=0 TO 99: IF A=0: FILL
1770 FOR K=0 TO 99: IF A=0: FILL
1780 FOR L=0 TO 99: IF A=0: FILL
1790 FOR M=0 TO 99: IF A=0: FILL
1800 FOR N=0 TO 99: IF A=0: FILL
1810 FOR O=0 TO 99: IF A=0: FILL
1820 FOR P=0 TO 99: IF A=0: FILL
1830 FOR Q=0 TO 99: IF A=0: FILL
1840 FOR R=0 TO 99: IF A=0: FILL
1850 FOR S=0 TO 99: IF A=0: FILL
1860 FOR T=0 TO 99: IF A=0: FILL
1870 FOR U=0 TO 99: IF A=0: FILL
1880 FOR V=0 TO 99: IF A=0: FILL
1890 FOR W=0 TO 99: IF A=0: FILL
1900 FOR X=0 TO 99: IF A=0: FILL
1910 FOR Y=0 TO 99: IF A=0: FILL
1920 FOR Z=0 TO 99: IF A=0: FILL
1930 FOR A=0 TO 99: IF A=0: FILL
1940 FOR B=0 TO 99: IF A=0: FILL
1950 FOR C=0 TO 99: IF A=0: FILL
1960 FOR D=0 TO 99: IF A=0: FILL
1970 FOR E=0 TO 99: IF A=0: FILL
1980 FOR F=0 TO 99: IF A=0: FILL
1990 FOR G=0 TO 99: IF A=0: FILL
2000 FOR H=0 TO 99: IF A=0: FILL
2010 FOR I=0 TO 99: IF A=0: FILL
2020 FOR J=0 TO 99: IF A=0: FILL
2030 FOR K=0 TO 99: IF A=0: FILL
2040 FOR L=0 TO 99: IF A=0: FILL
2050 FOR M=0 TO 99: IF A=0: FILL
2060 FOR N=0 TO 99:
```

```

330 FOR I=250 TO 300 STEP 10
  ADD 36077.1 HENT
340 FOR J=0 TO 2
350 IF X(I)*Y AND X(I)*Y1 THEN X(I)=X(I)+
  S=0+5
360 IF X(I)*C1 OR Y(I)*C1+1 OR X(I)*C21
  THEN 430
370 FOR 36077.000
380 S=0+10 IF X(I)=0 THEN S=0+20
390 PRINT LEFT$(X(I),10)LEFT$(Y(I),10)
  X(I)=0
400 FOR S=1 TO 10 NEXT J
410 IF X(I)=0 THEN 440
420 S=0+10 IF Y(I)<15 THEN H=+1
  GOTO 440
430 FOR 3142+X(I), S=0
440 X(I)=0
450 NEXT I PRINT LEFT$(X(I),10)LEFT$(Y(I),10)
  -FOR 36077.1 HENT
460 NEXT H IF X(I)=0 THEN 330
470 PRINT LEFT$(X(I),10)LEFT$(Y(I),10)
  Y(I)=0
480 IF X(I)=0 THEN 520
490 IF X(I)=0 THEN PRINT " = GOTO 330
500 IF Y(I)=20 AND X(I)<20 THEN PRINT
  " =
510 X(I)=Y(I)-Y(I)*C21
520 IF X(I)*Y=0 X(I)=22+X(I)=00
  IN X(I)=0 Y(I)=20 PRINT "
  GOTO 330
530 IF Y(I)=21 THEN X(I)=X(I)+INT(RND
  (1000)-1)
540 GOTO 330
550 Y(I)=Y(I)-X(I)*C1=X(I)+INT(RND(1000)-
  1)
560 IF X(I)<1 THEN X(I)=1
570 IF X(I)>20 THEN X(I)=0
580 PRINT LEFT$(X(I),10)LEFT$(Y(I),10)
  X(I)=0
590 IF X(I)=0 THEN PRINT
  " =
600 IF Y(I)=1 AND X(I)=0 THEN PRINT
  " =
  H=H+1
  PRINT "

```

PLANET ELECTRO

by C. MILL

```

600 GOTO 650
610 XCL=XCL+(XCL/37)-(XCL/37)
620 YCL=YCL+(YCL/37)-(YCL/37)
630 PRINT LEFT$(XCL),LEFT$(YCL)
640 IF XCL<0 OR XCL<10 AND YCL<0
  1 THEN 600
650 IF XCL<0 OR XCL<10 THEN 600
660 XCL=INT(RND(1)*10)+10
670 YCL=INT(RND(1)*10)+10
680 FOR I=0 TO 2 IF XCL<10 THEN 710
690 GOSUB 700 IF XCL<10 OR YCL<10
700 XCL=XCL/2 YCL=YCL/2
710 PRINT LEFT$(XCL),LEFT$(YCL)
720 XCL=XCL/2 YCL=YCL/2
730 XCL=XCL/2 YCL=YCL/2
740 PRINT LEFT$(XCL),LEFT$(YCL)
750 IF XCL<10 AND YCL<10 AND XCL<10
  1 THEN 600
760 NEXT I
770 NEXT I IF XCL THEN 600
780 GOTO 600
790 FOR I=0 TO 100
  100 FOR J=0 TO 100
    110 IF RND(1)<.5 THEN FOR K=0 TO 100
      120 GOTO 650
    130 IF RND(1)<.5 THEN FOR L=0 TO 100
      140 GOTO 650
    150 FOR M=0 TO 100
      160 FOR N=0 TO 100
        170 PRINT "SCORE"
        180 SET A IF A<0 THEN 110
        190 RETURN
      200 PRINT "PLANET ELECTRO"
      210 PRINT "SCORE"
      220 PRINT "SCORE"
      230 PRINT "SCORE"
      240 PRINT "SCORE"
      250 PRINT "SCORE"
      260 PRINT "SCORE"
      270 SET A IF A<0 THEN 110
      280 RETURN
    290 NEXT N
    300 NEXT M
    310 NEXT L
    320 NEXT K
  330 NEXT J
  340 NEXT I

```

```

350 XCL=XCL+(XCL/37)-(XCL/37)
360 IF XCL<0 OR XCL<10 THEN 600
370 IF XCL<0 OR XCL<10 THEN 600
380 YCL=YCL+(YCL/37)-(YCL/37)
390 XCL=XCL/2 YCL=YCL/2
400 PRINT LEFT$(XCL),LEFT$(YCL)
410 XCL=XCL/2 YCL=YCL/2
420 XCL=XCL/2 YCL=YCL/2
430 XCL=XCL/2 YCL=YCL/2
440 XCL=XCL/2 YCL=YCL/2
450 XCL=XCL/2 YCL=YCL/2
460 XCL=XCL/2 YCL=YCL/2
470 XCL=XCL/2 YCL=YCL/2
480 XCL=XCL/2 YCL=YCL/2
490 XCL=XCL/2 YCL=YCL/2
500 XCL=XCL/2 YCL=YCL/2
510 XCL=XCL/2 YCL=YCL/2
520 XCL=XCL/2 YCL=YCL/2
530 XCL=XCL/2 YCL=YCL/2
540 XCL=XCL/2 YCL=YCL/2
550 XCL=XCL/2 YCL=YCL/2
560 XCL=XCL/2 YCL=YCL/2
570 XCL=XCL/2 YCL=YCL/2
580 XCL=XCL/2 YCL=YCL/2
590 XCL=XCL/2 YCL=YCL/2
600 XCL=XCL/2 YCL=YCL/2
610 XCL=XCL/2 YCL=YCL/2
620 XCL=XCL/2 YCL=YCL/2
630 XCL=XCL/2 YCL=YCL/2
640 XCL=XCL/2 YCL=YCL/2
650 XCL=XCL/2 YCL=YCL/2
660 XCL=XCL/2 YCL=YCL/2
670 XCL=XCL/2 YCL=YCL/2
680 XCL=XCL/2 YCL=YCL/2
690 XCL=XCL/2 YCL=YCL/2
700 XCL=XCL/2 YCL=YCL/2
710 XCL=XCL/2 YCL=YCL/2
720 XCL=XCL/2 YCL=YCL/2
730 XCL=XCL/2 YCL=YCL/2
740 XCL=XCL/2 YCL=YCL/2
750 XCL=XCL/2 YCL=YCL/2
760 XCL=XCL/2 YCL=YCL/2
770 XCL=XCL/2 YCL=YCL/2
780 XCL=XCL/2 YCL=YCL/2
790 XCL=XCL/2 YCL=YCL/2
800 XCL=XCL/2 YCL=YCL/2
810 XCL=XCL/2 YCL=YCL/2
820 XCL=XCL/2 YCL=YCL/2
830 XCL=XCL/2 YCL=YCL/2
840 XCL=XCL/2 YCL=YCL/2
850 XCL=XCL/2 YCL=YCL/2
860 XCL=XCL/2 YCL=YCL/2
870 XCL=XCL/2 YCL=YCL/2
880 XCL=XCL/2 YCL=YCL/2
890 XCL=XCL/2 YCL=YCL/2
900 XCL=XCL/2 YCL=YCL/2
910 XCL=XCL/2 YCL=YCL/2
920 XCL=XCL/2 YCL=YCL/2
930 XCL=XCL/2 YCL=YCL/2
940 XCL=XCL/2 YCL=YCL/2
950 XCL=XCL/2 YCL=YCL/2
960 XCL=XCL/2 YCL=YCL/2
970 XCL=XCL/2 YCL=YCL/2
980 XCL=XCL/2 YCL=YCL/2
990 XCL=XCL/2 YCL=YCL/2
1000 XCL=XCL/2 YCL=YCL/2

```



blue chip computers

"FREE" POSTAGE AND PACKING ON ALL ORDERS OVER £10.00

ADD £3.00 TO ORDERS UNDER £10.00 UK MAINLAND ONLY
WESTERN EUROPE + 10%
ELSEWHERE + 15%

Grand Summer Sale

SALE

We pride ourselves on a fast delivery
& customer satisfaction

AUTHORISED
TEXAS INSTRUMENT
DEALER

TEXAS INSTRUMENT'S RANGE

	UK PRICE	SALE PRICE
TRIMASTER	£59.95	£59.95
TRILASER TRILASERCOM	£69.95	£69.95
TRILASER	£69.95	£69.95
TRILASER II	£69.95	£69.95
TRILASER III	£69.95	£69.95
TRILASER IV	£69.95	£69.95
TRILASER V	£69.95	£69.95
TRILASER VI	£69.95	£69.95
TRILASER VII	£69.95	£69.95
TRILASER VIII	£69.95	£69.95
TRILASER IX	£69.95	£69.95
TRILASER X	£69.95	£69.95
TRILASER XI	£69.95	£69.95
TRILASER XII	£69.95	£69.95
TRILASER XIII	£69.95	£69.95
TRILASER XIV	£69.95	£69.95
TRILASER XV	£69.95	£69.95
TRILASER XVI	£69.95	£69.95
TRILASER XVII	£69.95	£69.95
TRILASER XVIII	£69.95	£69.95
TRILASER XIX	£69.95	£69.95
TRILASER XX	£69.95	£69.95
TRILASER XXI	£69.95	£69.95
TRILASER XXII	£69.95	£69.95
TRILASER XXIII	£69.95	£69.95
TRILASER XXIV	£69.95	£69.95
TRILASER XXV	£69.95	£69.95
TRILASER XXVI	£69.95	£69.95
TRILASER XXVII	£69.95	£69.95
TRILASER XXVIII	£69.95	£69.95
TRILASER XXIX	£69.95	£69.95
TRILASER XXX	£69.95	£69.95

	UK PRICE	SALE PRICE
PORT	£19.95	£19.95
QUANTUM COMPASSION	£19.95	£19.95
QUANTUM COMPASSION II	£19.95	£19.95
QUANTUM COMPASSION III	£19.95	£19.95
QUANTUM COMPASSION IV	£19.95	£19.95
QUANTUM COMPASSION V	£19.95	£19.95
QUANTUM COMPASSION VI	£19.95	£19.95
QUANTUM COMPASSION VII	£19.95	£19.95
QUANTUM COMPASSION VIII	£19.95	£19.95
QUANTUM COMPASSION IX	£19.95	£19.95
QUANTUM COMPASSION X	£19.95	£19.95
QUANTUM COMPASSION XI	£19.95	£19.95
QUANTUM COMPASSION XII	£19.95	£19.95
QUANTUM COMPASSION XIII	£19.95	£19.95
QUANTUM COMPASSION XIV	£19.95	£19.95
QUANTUM COMPASSION XV	£19.95	£19.95
QUANTUM COMPASSION XVI	£19.95	£19.95
QUANTUM COMPASSION XVII	£19.95	£19.95
QUANTUM COMPASSION XVIII	£19.95	£19.95
QUANTUM COMPASSION XIX	£19.95	£19.95
QUANTUM COMPASSION XX	£19.95	£19.95
QUANTUM COMPASSION XXI	£19.95	£19.95
QUANTUM COMPASSION XXII	£19.95	£19.95
QUANTUM COMPASSION XXIII	£19.95	£19.95
QUANTUM COMPASSION XXIV	£19.95	£19.95
QUANTUM COMPASSION XXV	£19.95	£19.95
QUANTUM COMPASSION XXVI	£19.95	£19.95
QUANTUM COMPASSION XXVII	£19.95	£19.95
QUANTUM COMPASSION XXVIII	£19.95	£19.95
QUANTUM COMPASSION XXIX	£19.95	£19.95
QUANTUM COMPASSION XXX	£19.95	£19.95

	UK PRICE	SALE PRICE
QUANTUM COMPASSION	£19.95	£19.95
QUANTUM COMPASSION II	£19.95	£19.95
QUANTUM COMPASSION III	£19.95	£19.95
QUANTUM COMPASSION IV	£19.95	£19.95
QUANTUM COMPASSION V	£19.95	£19.95
QUANTUM COMPASSION VI	£19.95	£19.95
QUANTUM COMPASSION VII	£19.95	£19.95
QUANTUM COMPASSION VIII	£19.95	£19.95
QUANTUM COMPASSION IX	£19.95	£19.95
QUANTUM COMPASSION X	£19.95	£19.95
QUANTUM COMPASSION XI	£19.95	£19.95
QUANTUM COMPASSION XII	£19.95	£19.95
QUANTUM COMPASSION XIII	£19.95	£19.95
QUANTUM COMPASSION XIV	£19.95	£19.95
QUANTUM COMPASSION XV	£19.95	£19.95
QUANTUM COMPASSION XVI	£19.95	£19.95
QUANTUM COMPASSION XVII	£19.95	£19.95
QUANTUM COMPASSION XVIII	£19.95	£19.95
QUANTUM COMPASSION XIX	£19.95	£19.95
QUANTUM COMPASSION XX	£19.95	£19.95
QUANTUM COMPASSION XXI	£19.95	£19.95
QUANTUM COMPASSION XXII	£19.95	£19.95
QUANTUM COMPASSION XXIII	£19.95	£19.95
QUANTUM COMPASSION XXIV	£19.95	£19.95
QUANTUM COMPASSION XXV	£19.95	£19.95
QUANTUM COMPASSION XXVI	£19.95	£19.95
QUANTUM COMPASSION XXVII	£19.95	£19.95
QUANTUM COMPASSION XXVIII	£19.95	£19.95
QUANTUM COMPASSION XXIX	£19.95	£19.95
QUANTUM COMPASSION XXX	£19.95	£19.95

SEND CHECK OR POSTAL ORDER NOW TO
BLUE CHIP COMPUTERS 14 Chippa Lane, Aylesbury, Bucks HP8 4JH
0494 544411, 0494 544412, 0494 544413
TELEFAX 0494 544414
TELETYPE 0494 544415
FAX 0494 544416
E-MAIL bluechip@bluechip.com
WWW bluechip.com

TO: Blue Chip Computers, 14 Chippa Lane, Aylesbury

Please send me:

Name _____

Address _____

Telephone (if necessary, enter in the space of 2) _____

New from

MIRRORSOFT

Watch out for MI BOUNCER!

Testing your wit—in a test of speed and
tactics with four screens each with
eight stages. Kiss Mr. Bouncer waving
hand and score points if you can!

MI BOUNCER tests
reflexes and game
tactics skills
tough. It's so tough
that it requires
a level playing
program for its full
features (or else) is included.

On cassette for the
BBC B (version for
the Commodore 64
and Spectrum coming
soon) £8.95



Discover the excitement of creative computing with

GO SPRITE

A versatile, easy-to-use sprite editor for the Commodore 64
which also handles sprite animation sequences on-screen.

With a choice of joystick, lightpen or user-definable keyboard
control Go-Sprite has an 8000-driven command system for
ease and speed of use.

Go-Sprite can handle up to 32 bit files or Multicolor sprites
and produce overlays up to seven layers.

Sprite files can be made on disk or tape and two
accompanying programs enable you to produce data and
sprites for use in your own programs.

For the Commodore 64, on cassette £8.95, or disk £14.95.

All prices are inclusive of VAT. Microsoft programs are available from Mirror Software of Basing, John Bunting and W.A. Smith and from other leading software dealers.



Go hunting with CAESAR THE CAT

Help Caesar clear the land of mice. Hunting along pre-set
routes you guide Caesar as he thumps persistent mice
which are disturbing plates of food. Mice disappear when
brushed on the OSM 64, accelerated on the Spectrum.
Caesar is now here for BBC B owners.

On cassette for BBC B and Spectrum £8.95 and
£14.95.

Cuddle your own CAESAR



Personalise or fully reproduce
with any version of Caesar the Cat
this simple but effective
mouse-proofing program. Caesar the
Cat will be back but mice won't.
Personalised cuddly with easily
changed messages. 12 inches. Has a
your own home computer £3.50
for 1800 word code set.

GO SPRITE 1 - 15.00 £8.95 (cass) £14.95 (disk)

Please send no cheques or postal orders
or money orders.

- 1. A. Bunting (1985)
- 2. Bunting (1985)
- 3. Bunting (1985)
- 4. Bunting (1985)
- 5. Bunting (1985)
- 6. Bunting (1985)

GO SPRITE 2 - 15.00 £8.95 (cass) £14.95 (disk)

Please send no cheques or postal orders
or money orders.

- 1. A. Bunting (1985)
- 2. Bunting (1985)
- 3. Bunting (1985)
- 4. Bunting (1985)
- 5. Bunting (1985)
- 6. Bunting (1985)

GO SPRITE 3 - 15.00 £8.95 (cass) £14.95 (disk)

Please send no cheques or postal orders
or money orders.

- 1. A. Bunting (1985)
- 2. Bunting (1985)
- 3. Bunting (1985)
- 4. Bunting (1985)
- 5. Bunting (1985)
- 6. Bunting (1985)

GO SPRITE 4 - 15.00 £8.95 (cass) £14.95 (disk)

Please send no cheques or postal orders
or money orders.

- 1. A. Bunting (1985)
- 2. Bunting (1985)
- 3. Bunting (1985)
- 4. Bunting (1985)
- 5. Bunting (1985)
- 6. Bunting (1985)

£14.95

ARCADE ALLEY



WHEEL
WHEEL



THERE'S NO mistaking the Tami T65, latest in one of the oldest of arcade staples. We simulated racing in games.

For a start, it's almost as large as the real thing. More eye-catching, there are three screens rather than the usual one. The panoramic view that appears is quite striking, particularly — when you get

that far — in a right-time sequence. Otherwise, I suspect that the triple screen effect is more of an eye-catching gimmick than an aid to the game itself. Because although there is a much broader panorama than in the usual one-screen games, there's no real use of the three screens within the confines of the game itself. In, you can't, for example, see cars approaching (receding?) from a distance — as far as this poster could make out anyone, all the action occurs on the front-

ier central screen.

Still, it does look good. Tell a lie on the left-hand screen there too small most of the whole course in which you can glimpse your overall progress. Mind you, the 'view' takes place at such a clip that a novice probably won't have the time or the inclination to look away from the dead ahead. There's a brake, accelerator and a two-speed (High, Low) gearstick. The wheel controls are hand-mouth-free — as presumably they are on the full speed real thing — so that the slightest movement has its effect.

Being a non-driver, the nearest hint of a curve in the road was had via wear-



JOHN WATSON-MET GIOVANNI PADON

ing wigs. The first indication of this happening is when you hear yourself slacking; full to check that and you go into a spin; unless you're quick and correct your motion there's a good chance that disaster will occur when your vehicle hits one of several thoughtfully placed hill-beams, walls etc. The race takes place in four progressive stages. If you get as far as the last of these a flick of the wheel enables you to choose from one of eight Grand Prix circuits —

Morocco etc. etc. Whether these are actual replicas of the real thing, only an expert could tell you. To a non-driving layman it's all pretty convincing. After only ten minutes' play I had these broken ribs, a lacerated leg, covers burnt all over my body and irreversible brain damage. I left five arcade with a stunning blonde on arm and a magnet of chair magnet at my lips. It has to be said: after T65 any ordinary racing game is ... just the pits!



MEET JOHN WATSON-MEET JOHN WATSON

IND meets John Watson. Well, nearly...



GOD'S GREATEST!

48K Spectrum

Available soon for CBM 64

This is
no Fairytale
it's for
REAL!



ACTUAL SCREEN DISPLAYS
The Most Graphical
Arcade Simulation
Ever Produced

AVAILABLE FROM DISTRIBUTORS SHOWN ON:

JOHN BOWEN

TELEPROGRESS



makro

Software

Growth

Software

Games

JOHN BOWEN LTD
LOCAL SOFTWARE CENTRE

DEVELOPERS ADVISED:

MACRO DEALER UK Ltd

Type Reader



CentreSoft

PC DISTRIBUTION

Building

Software

Games

ONLY
£5.95

If you have difficulty in obtaining your copy - call 01 in the Greater Area

For a copy of the game, please contact the following:

Company Name: _____

Address: _____

Post Code: _____

Phone: _____

PROBABLY THE LARGEST RANGE OF DISCOUNT SOFTWARE CURRENTLY AVAILABLE — WITH THE LARGEST DISCOUNTS YOU'LL FIND

SIGNALING SPECTRUM

	POP	Our Price
Bayou Bluff	0.00	7.40
Lunar Jetwash	0.00	4.00
Paytron	7.00	0.00
Lords Mustang	0.00	7.40
Fighter Pilot	7.00	5.40
Night Runner	0.00	5.40
Mugby	0.00	5.40
TLL	0.00	4.40
Trashman	0.00	5.40
Amos	0.00	5.40
Canoe Fighter	0.00	6.40
Jack & Beansnake	0.00	4.40
Aj Azim	0.00	4.40
Roaming Range	0.00	4.40
Manic Miner	0.00	4.40
Jet Set Willy	0.00	4.40
Fred	0.00	5.40
Snowman	0.00	5.40
Bugaboo	0.00	5.40
Oregonbone	0.00	5.40
Bugsy	0.00	0.00
Pyramid	0.00	4.00
Cooneydy-Castle	0.00	0.00
Automania	0.00	5.40
Carillon	0.00	0.40
Hunchback	0.00	5.40
Football Manager	0.00	5.40
Black Alley	0.00	4.40
Law Files	0.00	0.40
Blue Thunder	0.00	4.40
War of the Worlds	0.00	4.40
World Cup	0.00	5.40
Hung	10.00	10.00
Reel	0.00	0.40

McGraw-Hill	8.95	7.48
Learn Basic	12.95	10.48
Tranword II	12.95	10.90
Football Wizard	5.95	4.48
Code Name War	4.95	3.48

CONSIDER **IN**

	RSP	Cash Price
Valentino 84	14.99	11.99
Revenge Camels	7.50	6.99
Beach Head	9.95	7.49
Killmeat	3.99	3.99
Blagger	7.95	5.99
Star-Wagger	7.99	5.99
Space Pilot	7.95	5.99
207 Flight P.	7.99	5.99
Superspace	6.99	4.99
Cynopod	6.99	4.99
Sheep in Space	7.99	5.99
Loto	7.95	5.99
Star Trooper	6.99	5.99
Encounter	6.99	5.99
Boke Flight	14.95	11.99
Artic Challenge	6.99	5.99
Hunchback	5.99	4.99
Chinese Juggler	4.99	4.99
Crash Motor	7.99	5.99
Olympic Star	5.99	4.99
Caravan	6.99	4.99
Parade of Kings	7.99	5.99
Tales Arabian Nights	7.99	5.99
Torn Kingdom	8.99	7.99
O'Leary's	6.99	5.99
Prehistoric	44.40	20.49
Movie: Mischief	7.99	6.99

Please use about 2000 to 2500 words.

1992-1993

	RRP	Our Price
Footman	8.95	4.99
Spartan	8.95	8.95
Footballer	7.95	8.95
Overdose	7.95	8.95
Avatar	14.95	10.95
Bigger	7.95	5.95
Eagle Wing	7.95	6.95
Planetoid	8.95	7.40
Ten Kingdom	8.95	7.95
Caution	59.95	41.95
Chicken Cox	7.95	4.95

Discussion

Coordinator	7,000	10,000
State	7,000	10,000
Associates	10,000	7,000

1000 0000 0000

Flight path 732	1.000	8.000
Jet Fuel	8.000	8.000

Abstract

Jeepster	14.02	11.88
Rolli Speedway	20.96	23.99
Carra Cowboy	5.05	7.65

DAIC - ATN:05

1990-1991	1991-1992	1992-1993	1993-1994
1994-1995	1995-1996	1996-1997	1997-1998
1998-1999	1999-2000	2000-2001	2001-2002
2002-2003	2003-2004	2004-2005	2005-2006
2006-2007	2007-2008	2008-2009	2009-2010
2010-2011	2011-2012	2012-2013	2013-2014
2014-2015	2015-2016	2016-2017	2017-2018
2018-2019	2019-2020	2020-2021	2021-2022
2022-2023	2023-2024	2024-2025	2025-2026
2026-2027	2027-2028	2028-2029	2029-2030
2030-2031	2031-2032	2032-2033	2033-2034
2034-2035	2035-2036	2036-2037	2037-2038
2038-2039	2039-2040	2040-2041	2041-2042
2042-2043	2043-2044	2044-2045	2045-2046
2046-2047	2047-2048	2048-2049	2049-2050
2050-2051	2051-2052	2052-2053	2053-2054
2054-2055	2055-2056	2056-2057	2057-2058
2058-2059	2059-2060	2060-2061	2061-2062
2062-2063	2063-2064	2064-2065	2065-2066
2066-2067	2067-2068	2068-2069	2069-2070
2070-2071	2071-2072	2072-2073	2073-2074
2074-2075	2075-2076	2076-2077	2077-2078
2078-2079	2079-2080	2080-2081	2081-2082
2082-2083	2083-2084	2084-2085	2085-2086
2086-2087	2087-2088	2088-2089	2089-2090
2090-2091	2091-2092	2092-2093	2093-2094
2094-2095	2095-2096	2096-2097	2097-2098
2098-2099	2099-2100	2100-2101	2101-2102
2102-2103	2103-2104	2104-2105	2105-2106
2106-2107	2107-2108	2108-2109	2109-2110
2110-2111	2111-2112	2112-2113	2113-2114
2114-2115	2115-2116	2116-2117	2117-2118
2118-2119	2119-2120	2120-2121	2121-2122
2122-2123	2123-2124	2124-2125	2125-2126
2126-2127	2127-2128	2128-2129	2129-2130
2130-2131	2131-2132	2132-2133	2133-2134

All tapes are guaranteed originals. Shown here is just a small part of our stock. If you require a price list (we stock hardware also) please visit the above number.

Name	MS
Address	Tapes required
Total due	Total Amount

WANNA WIN A FIVER?

Yes, you too can join the formidable team of letters assembled on this here double-page spread and end up **RICHER BY FIVE WHOLE POUNDS!** (If we publish your letter, that is.)

Mail your
we'll to

Letterbase,
Big K
Room 2070
IPC Magazines Ltd
Kings Reach Tower
Stanford Street
London SE1 9LS

Combien?

I HAVE written a couple of programs myself and would like to know how much Big K pays for them.

• We don't have a given fixed sum, as the quality, originality and sheer graft that goes into programs varies so much. However, the minimum £50 up to £100 on the sliding-shake-scale?

If you do want your prog to get a quick going card, note that priority is given to those with some demonstration attached (And label your cassette clearly.) Equally sharing (if you have the technology.) is a prog textually wrapped in its own 46 column print-out.



APE FAN

WHAT KONG game do you think is best for the Commodore 64?
AKIHIRO NINAGI
London

• We just don't know, your friend. The truth is: we can't abide 'anti-Bodger' that dreads anthropoid barrels (or other 'Footers') just doesn't turn our collective crankshaft. Tell you what, tho'. We'll give £5 to the Kong fan who can contrive the most awe-inspiring and convincing plug for his personal phone. (It had better be good!) You never know, you might get spotted by Swatch's and make your fortune by selling off to the Arab states. Map? We still waiting to be spotted.



An Irate Pensioner Writes

THE Video Recordings Bill was brought in because contemporary film stars, such as film producers and the current TV producers (who would probably prefer their own Galaxy for money) phone to ponder in the sick-minded and proceed in the name and for cash.

At 60 years, my own grandchild is too busy playing and enjoying a 'video' computer game. No one doubts the box violence in the 'A-Team' or 'The Fall Guy'. The objective is to unbridled programming created by suppliers, parents and readers in their unbridled efforts to enjoy youth.

W LUCOTON
Maidenhead.

• We're not sold about prices and readers either. Pay — even when Big K wants for content — is not high. We're looking for more and more. But could have the money for you? If you've got to have content, then the Who, the Who, and the Who must be debated in public. And let's make it specific to this case, important, popular and serious industry. It's not only business but important to try to keep in old games with imagination, making for video films.

The (un)importantly, content (it might well lead to his dictionary that video simply means 'True'. Both films and games copy 'content' (but apart from that, they just don't) the same old game of all.

Let us continue. There has been NO actual protection in the country for 'video game industry'. And there's no real evidence of Marquis de Sade types writing programs, either. Don't panic.

No Subs, Use Force

I WOULD like to know how much it would be to send me Issue No 1 of your great magazine.

ADRIAN PEAR,
Glaston

• (Pleee!) Sorry Ad, and welcome to the world of being writing in asking for such issues. Would the pleasure? As there's great that we've had some copies. And we'll have regularly appearing them when subscriptions will be made available. The only restriction is to the time spent, well, it's a shame. However, over the course of your career, we'll get each time release of 4 or more. But no violence, please. Or at night — just a bit.

Earnest plea

I AM the World's Greatest Electron User. And I'm — for actually doing for us and our computer Electron type, it's not. And it's not that they can't get our hands out of it.

ADRIAN PEAR,
Glaston

• Why don't you try to find something we don't?

Yours Unrepentantly, A Software Pirate . . .

YES, I do copy programs from friends' tapes — and I borrow audio cassettes using two tape decks. I know it's theft and I honestly don't care. Here's why. Computer software is, in the main, overpriced rubbish. Just like music: I buy a lot of records and video tape a lot (because I have been floored enough by record companies' £5 plus for a record is quite a lot). Considering an average £100 goes to the musician, should you really say I'm not helping the poor music very much by taking five songs, say, that I'm a semi-pro musician myself? Somebody like David Bowie or Sting is hardly going to miss £10, and anyway, there is something in the lines of patent about copying whole the two-tape originals anyway.

It is no breach of patent to manufacture a copy of the patented article for one's own use, or to give a copy to a friend. In some recent companies and software houses want the best of both worlds. Surely the Copyright laws and Patent laws are together under the same, so surely home taping is perfectly legal!

I would be less inclined to copy software if I knew better value for money. It is recorded on really cheap quality tapes, badly packaged, poorly illustrated etc. Actually well at the standard of things.

While I am very shocked that you should wish to lose the asset of the software houses with sophisticated, anti-tape-copying devices. Why on earth didn't you raise the alarm, I have mismanaged? Does it mean you have a personal interest in a software company? Or do you just want to lose your advertisement?

If I had some feedback on it I like, from readers, writers, and companies themselves, without the usual about laws of profits etc, because I don't care. I just want better software and at a lower cost, and I want it now!

PAUL BULLMAN,
Sheffield

Of course it's perfectly possible to take the full-blooded standard point of view, as you have. It's no more than the truth that as the regulations who make and sell programmes and records are all so rich, they won't miss your money. I think you deserve your own case, however, by saying that you would be less inclined to copy software if it was better value for money. With "less inclined" I surely your financial stand shouldn't be diluted by false and meaningless considerations of things like "value for money". I don't like it is that people like you would still feel aggrieved and ripped off even if it came free with the milk? Ergo, you feel exploited and you want some redress understandable, but don't climb on a moral soapbox about it.

OK, I'm not with you on that, but I'm with you on this: No. Do I want to keep my advertisements paid? Of course, but not at all costs, and this problem affects all software makers, not just those who have the indignity and good taste to advertise in *ESP*. — Tony Tyler

Ripped off

NEXT TIME you need a poll, could you please put some serious effort on the magazine, or make it better, or get on with it sooner?
S. HUNTER,
London

We had no idea. If I didn't think you'd borrow our *Mix* like 'Ye write me a piece or two' just for you, well going to use the tape, *Mix* like, I've got to take down the Editor, who interviewed *Mix* like. Thanks for your letter. I'll be in touch.

Slow down

I'M SURE that a lot of people who have computers don't know or understand everything that is written, so an *Idiot's Guide* in plain and simple young people's English would be welcomed by a great many people.

R. HAWES
Leam.

WHY DON'T you get a "learn-it" section in your magazine?

JOE BENSON
Limerick, Ireland

The idea of *Idiot's* is to pitch at all levels at once, so there's something for everyone in each *Idiot's*. You'll pick up more than you realise when you're having fun — so stop worrying about their *Idiot's* doing this, get your head down and enjoy!

LINE NOISE

MY FRIEND told me that he had had problems locating a game on the Dragon. However, he discovered that by moving the power supply to the away from the TV set position, his problem disappeared, and the tape loaded straight away. When I got home, I tried doing the same thing with my machine, and it loaded just fine. Why?

ASLAN BACIN
Guelph

What your mate was getting was a really dose of "line noise". Remember that anything electrical that's attached to your system will not be out of sync with the computer. So if your machine starts giving you stuff with interference or general malfunctioning, it's worth having a check upon check on your connections. A right?

"WE'VE BEEN LIKE THIS EVER SINCE WE DISCOVERED THE PASSAGE FOR THE WORLD'S END."



TONY BENTON

fantasy

SOFTWARE

DOOMSDAY CASTLE

is an arcade style game
with the feel
of a real adventure

Doomsday Castle consists of a labyrinth of 76 complex inter-connected Halls and Passages where you will meet a whole host of adversaries serving the infinitely evil Scarthax, the Garthogs, the Orphacs, the phenomenally nasty Googly Bird and the Uiks which manifest themselves in over fifty unbelievably weird and wonderful guises.

Scarthax has scoured the Universe to bring together the six ancient stones of life force. United in Doomsday Castle they are being used to wield an irresistible power over the cosmos, emanating waves of corruption through every galaxy.

To save the Universe, you must battle your way through the Castle to find and collect the six stones and use their force against

Scarthax to destroy Doomsday Castle, hopefully escaping yourself before the final cataclysmic explosion.

The task is not easy [saving the Universe never is] and it will take you many games to unfold the structure of Doomsday Castle and discover the locations of the ancient stones. The addictive arcade style action will keep you coming back to play but the overall challenge should still keep you occupied for months.

FANTASY SOFTWARE

is available from

W.H. SMITHS, JOHN MENZIES,
LASKYS, GREENS, RUMBELAWS,
SPECTRUM GROUP,
COMPUTERS FOR ALL and all other
good software retailers.



This takes up the role of our super hero. DOOMSDAY
characters have arrived in his laboratory
to capture him and return him to his original state.
The graphics are superb and the sound is a real
representation of the on-screen graphics.

For 48K
Spectrum

DOOMSDAY CASTLE

is available at £6.99 (vms)

FANTASY SOFTWARE, PO BOX 200, LONDON, W1A 9ST GEORGE'S ROAD, CHICHESTER, W. PO19 1SE
dispatched by return first class post together with this free copy and our customers receive it all FREE!
Book: DREAMS & VISIONS - ISBN 0 85172 583 5

ADVERTISEMENT INDEX

Activision	38/34	Microman	33
Addictive	21	Micro Power	81
Amiga	39	Micro Workshop	85
Beyond Software	7	Mimorsoft	87
Blue Chip Computers	88	MLS Group Ltd.	84
British Micro	89	NetRent	32
Casside	46	OIC	9
Channel 8 Software	80	Quickbase	Cov. 2
Chusich	31	Ram	18
Creative Sparks	55	R&R Software	43
Cumaph	43	Slice	23
Database	79	Software Index	78
DeLuxe	35	Solo	50
Fantasy	4/39	Supernat	27
Hutchinson	74	Talent	51
Incentive	5	Tandy	47
Labyrin	17	Thor	30
MOR	36	Ultimate	48
Megamaze	73	Video Force	86
Microdeal	Cov. 4	Video Palace	Cov. 3
		Yashida	71

WARRIOR'S REVENGE

Land Of No Return



48K SPECTRUM

Send cheque or P.O. for £5.95 to:

WARRIORS REVENGE

LAND OF NO RETURN

c/o VIDEO FORCE,

115 Greenend Rd.,

Sewtry,

Cambridge.

Tel No: 0487 830840

(Please allow 28 days for delivery)

WHO WILL JOIN THE EVIL DEAD NEXT?

FROM BRITAIN'S FIRST
HOMEBREW VIDEO FILM
TO A MAJOR
COMPUTER VIDEO GAME

THE EVIL DEAD IS ONE
OF THE MOST NOTICED
FILMS OF THE COMMERCIAL

THE EVIL DEAD

THE GAME THAT GUARANTEES SLEEPLESS NIGHTS!

AVAILABLE FROM
ALL GOOD COMPANIES
BANKS & CREDIT UNIONS
THE VIDEO PALACE
100-200 BROADWAY, LONDON W1



© 1988 THE EVIL DEAD

DISTRIBUTED BY
THE NEW VIDEO CLUB
100-200 BROADWAY
LONDON W1
TELEPHONE: 01-573 5555

Now for 6
major Home Computers

ARENA 3000

It is the year 3000. Can you survive each wave of Killer Robots as they attack and rescue the Human Survivor? Wave after wave of 100 killer robots try to corner you in the Galactic Arena. Will you win? High speed arcade action game. Full colour graphics with sound. Machine Language.

AVAILABLE FOR:

COMMODORE 64 - Tape ES Disk DM/5; ATARI 1050 - Tape ES Disk DM/5; BBC MODEL B - Tape ES Disk DM/5;
ACORN ELECTRONIC - Tape ES; ORIC 16/48K - Tape ES/50; SPECTRUM 48K - Tape ES 50

Mail Order Sales from
Microdeal Mail Order 41 Truro Rd,
51 Austell Cornwell PL25 5JG

Credit Card Sales   
Phone 0726 3456



Dealers Contact
MICRODEAL DISTRIBUTION
0726-3456

or NEEDLE'S SOFTWARE
0443 62222

MICRODEAL

Selected Microdeal titles available from computer dealers nationwide or from larger branches of

